Abstracts

www.icsla2015.nl
Keynote speakers
Of Sights and sounds. The acquisition of phonological representations in spoken Dutch and Sign Language of the Netherlands (NGT)

Fikkert – keynote speaker

Words in spoken languages are what signs are in sign languages: they are the central units in human language comprehension and production. We recognize words fast and reliably, by extracting relevant features from the input, and matching them with phonological representations of words stored in the brain. To produce words we use cognitive phonological representations to initiate articulatory routines. Thus, while words are the semantic building blocks of spoken language, words themselves are decomposed into smaller units organized in phonological representations that are crucial for perception and production. Insight into the nature and the acquisition of phonological representations is therefore essential for understanding human communication.

In the past decades my research has investigated how hearing Dutch children acquiring spoken language learn these representations and put them to use language production and perception (see Fikkert 2007 for an overview). This research was based on (a) detailed investigation of large corpora of spontaneous production data (e.g., Fikkert 1994, Levelt 1994), and (b) experimental studies on early sound discrimination and word learning and recognition. Based on this research I have argued that phonological representations in the mind need to be distinguished from pre-lexical phonetic representations: not all phonetic details that are present in the acoustic signal are used in phonological representations, which are more abstract cognitive entities.

Just like spoken language, signed language also has phonological representations. Infants acquiring a sign language use visual input (sights), rather than acoustic input (sounds). Moreover, the mode of production (output) also differs, as it is mostly manual, although by no means exclusively so. This raises the question to what extent modality differences affect phonological representations.

Analyses of spoken language acquisition suggest that phonological representations are initially underdeveloped, and are gradually specified for features from different phonological dimensions: e.g. Place of Articulation (Fikkert & Levelt 2008, Tsuji et al. 2014, 2015), Manner of Articulation (Altvater-Mackensen, van der Feest & Fikkert 2014), Laryngeal features (Van der Feest 2007). Research based on American Sign Language (ASL) (Cheek et al. 2001, Meier 2006, Bonvillein & Siedlecki 1993, 2000), Brazilian Sign Language (Karnopp 2002, Bonvillein et al. 1997), and British Sign Language (Morgan et al. 2007) has established that children make relatively few errors with regard to certain phonological dimensions (location), while they produce many in other dimensions (movement, handshape). Handshape seems to pose the most problems for children. For Sign Language of the Netherlands (NGT), this has not been investigated. In contrast to spoken language acquisition, there is relatively little research into how infants acquiring a sign language build up phonological representations (cf. Brentari 2011, 2012). The central question is therefore how differences in modality affect the cognitive representations that are constructed during acquisition and used in perception and production.
The Linguistic Basis of Sign Bilingualism and Co-enrollment in Educating Deaf Children: A Hong Kong Case Study

Tang – keynote speaker

The emergence of sign linguistics research since the 1960s has led to widespread recognition of the linguistic status of sign languages and establishment of sign bilingual programs for the deaf worldwide. However, there is an apparent lack of synchrony in the development between sign linguistics research and deaf educational practices. While research is flourishing, the movement of promoting use of sign language in educating deaf children especially in the deaf school context has been slowing down quite dramatically in recent years. Advancement in assistive hearing technology has revived, if not further strengthened, the hope of parents, educators for the deaf and language pathologists that difficulties in deaf children’s communication through the auditory-oral modality may be removed, thus obviating the need of sign language support. The change of philosophy of deaf education from segregation in deaf schools to integration or inclusion in mainstream education for deaf children also potentially reduces the size of the signing communities, as deaf children can no longer be clustered together to nurture the growth of sign language and to sustain its transmission.

Amid these challenges, the field of research on sign language acquisition by deaf children has recently begun to orient itself from a monolingual to a bimodal bilingual approach, to build theories of bilingual acquisition or bilingual processing, and to furnish theoretical justifications for the ‘bilingual advantage’ in bringing up deaf children. To respond to such developments, one needs to carefully consider how to build an “acquisition-rich” environment for nurturing bimodal bilingualism among children given the current challenges, and more importantly, how one may tap the insights drawn from the findings that both the deaf and the hearing children born of Deaf parents demonstrate such linguistic capacities.

In this presentation, it is proposed that such a linguistic environment may be created through early bilingual education supporting not ‘deaf isolates’ but groups of deaf students as well as hearing students taught by a deaf signing teacher and a hearing teacher in class. This approach attempts to lift sign language from the bondage of social but misconceived perception that it is primarily a language for deaf children or hearing children born to Deaf parents. In fact, it can be a medium of instruction for any students regardless of their hearing status, given the appropriate linguistic ingredients. Using the findings of a recent experimental deaf education program set up since 2006 in Hong Kong, we will attempt to provide a linguistic interpretation of the various aspects of the program and evaluate to what extent some of these pedagogical variables interact with the development of bimodal bilingualism.
Multimodal, multilingual language acquisition

Thompson – keynote speaker

Information integration is among the brain’s most fundamental abilities. In our natural environment, our senses are constantly bombarded with multiple signals. The brain’s challenge is to integrate information from across the senses to form a more reliable percept. This talk explores the idea that language learning (and processing) also relies strongly on information integration, both across and within sensory modalities.

If true, we might predict the following specific components of language acquisition:

1. Language learning is inherently multimodal. Therefore language learners will readily integrate and acquire all relevant input (e.g., from visual and auditory input) that is linked in time and space.

2. We are ‘hard-wired’ for multisensory perceptual integration. Therefore information integration may proceed more smoothly for language comprehension (through perceptual input) compared to language production (through motor output) and learners will do better at comprehending multiple inputs compared to producing outputs.

3. Literature on multimodal biases suggests that when the senses deliver conflicting information, vision generally dominates and will bias information from other senses. Therefore input in the visual modality may be dominant compared to other sensory inputs.

4. Experimental data from sign language acquisition (both British Sign Language and American Sign Language), bimodal bilingual acquisition and processing will be presented to address these predictions.
Paper & Poster Presentations
Bi-bi, bilingual advantage? Auditory attention and visuospatial cognition in late L2 bimodal bilinguals

Atkinson, Sorace & Bak

The ‘bilingual advantage’ in non-linguistic tasks requiring conflict resolution and executive control is well-documented (Bialystok, Craik, Green and Gollan, 1999). Does this hold for the unique population of bilinguals proficient in a spoken and a sign language (‘bimodal bilinguals’)? Initial studies on visual attention tasks in English-American Sign Language native bilinguals suggest such advantages are absent for hearing signers, who perform like monolinguals (Emmorey, Luk, Pyers and Bialystok, 2008). This is explained via bimodal bilinguals’ ability to code-blend across modalities, producing elements of speech and sign simultaneously.

However, since the bimodal bilingual experience involves processing and producing languages in both visual-spatial and auditory-vocal modalities, it is worth exploring executive control in the latter too. Building on findings of an acquirable auditory attention advantage in late L2 spoken bilinguals (Bak, Vega-Mendoza and Sorace, 2014), a battery of auditory and visual attention plus category switching tests was given to n=25 late L2 English-British Sign Language (BSL) bilinguals. The non-overlapping modalities of these languages should not entail the development of a sophisticated executive control system; hence the prediction that spoken bilingual controls would again outperform bimodal bilinguals and monolingual controls.

While the auditory and visual task results followed predictions, one attentional ‘set-shifting’ task produced a surprising significant advantage for the bimodal bilingual group over controls. We argue that the task engages visuospatial aspects of cognition required for placement in BSL, hence this ‘signing advantage’. This finding builds on studies on native and L2 bimodal bilinguals that claim acquiring visuospatial aspects of sign languages leads to benefits in related areas of cognition, e.g. visuospatial processing (Keehner and Gathercole, 2007) and image generation (Emmorey, Kosslyn and Bellugi, 1993).

This study provides further evidence for modality constraints on bilingual attentional benefits, plus another example of a ‘signing advantage’ - one acquirable as a late L2 learner.

References


The standardized Visual Communication and Sign Language (VCSL) checklist

Baker & Clark

Problem
The Visual Communication and Sign Language (VCSL) checklist fills an important need for assessing the sign language acquisition of children, birth through five years of age. The VCSL is the only standardized assessment of young children’s acquisition of American Sign Language (ASL) available in the United States. The presentation will discuss the development of the assessment instrument from conceptualization through the standardization process, which took approximately four years. The process will be explained as occurring in three stages: Initial Development, Standardization, and Dissemination and Training.

Method
Twenty-three schools for the deaf participated in the standardization process; 35 teachers entered data in an online system on 83 children (48 girls/35 boys). The children were native signers between the ages of birth and 5 years, 11 months. Most of the children had been exposed to sign language from birth and attended ASL/English bilingual schools.

Results
Data were analyzed using frequency counts. We found the data highly consistent, which reduced variance and limited the need for a larger sample size. Quartiles were calculated for each item within each age range, and items were ordered based on the ages found for each quartile. Norms were developed and report the ages found for each quartile.

Conclusion
The VCSL is used to document the language developmental trajectory of children who communicate through a visual language. It assists in documenting language growth and identifying gaps in development, which can have serious repercussions on academic achievement if they remain unresolved. Through careful monitoring and documentation, the language acquisition of young deaf children should be more complete and this should lead to greater language and academic outcomes.
A survey of co-enrolment programs

Baker & Torigoe

Around the world co-enrolment has been implemented in several countries. Deaf children are educated alongside hearing children whereby both the hearing children and deaf children use both a spoken language and a sign language. In the classroom instruction is given by both deaf and hearing signing teachers. Such co-enrolment programs attempt to remove the pre-conception that a sign language is reserved for Deaf children only. They work on the basis that a sign language can function as any language in a bilingual educational program (Tang, 2015).

However the implementation of this core idea has taken many forms in different countries. This presentation will give an overview of some of these programs ranging from USA to Europe to Asia. It will first focus on three descriptive aspects: the different roles the Deaf teacher and hearing teacher can have, the variation in interaction between the Deaf and hearing children, and the ways in which the sign language and spoken language are used in the classroom. Secondly we will consider what forms best practices in this type of program and how these can be achieved.
Sign Bilingual Innovation in a Saudi Girls Deaf School

Basonbul & Kyle

Signing has been used in Saudi Deaf Schools for many years. However, there has been no systematic programme of training in Saudi Sign Language and almost no contact between the education system and Deaf community. The result has been poor progress in literacy and generally poor achievement (Al-Rayes and Al-Monai, 2009). Given the additional factors of gender segregation, the school management, the position of Deaf people, problems in transportation and limited contact with families, Deaf education has been confined to a low achievement, low aspiration state.

Into this system, we have introduced the concept of sign bilingual education with a particular focus on literacy for children aged 7 to 12 years. A new Arabic reading test has been devised and teachers have received training and support and mothers have been engaged. Significantly, for the first time, Deaf assistants have been introduced into the classroom.

Over a period of 12 months, we have monitored the effects, observing and interviewing all participants and collecting preliminary literacy data. However, it has become clear that a simple deterministic investigation of predicted impact of the new sign bilingual approach proves to be naive in the complexity of the educational culture in a girls Deaf school in Saudi Arabia.

In this presentation, we set out the factors which currently impede the development of the sign bilingual approach and consider the ways in which impact might eventually be measured. We are particularly interested in the introduction of Deaf assistants and will discuss their perceived effectiveness from the point of view of teachers, pupils and the Deaf assistants themselves.

There is much to be learned for education and language research in terms of programme implementation in this different cultural environment.

References
The acquisition of narrative competences and theory of mind in deaf children

Becker, Hansen, Barbeito Rey-Geissler

The development of narrative competences requires not only the acquisition of language but also social and cognitive competences, e.g. the development of a theory of mind. We are dealing with the following questions: If hearing-impaired children have only limited access to interaction either in signed or in spoken languages, how do these children acquire narrative competences in sign language? What kind of strategies do they adopt, and do these strategies differ from the ones adopted by children of Deaf parents, who thus have native access to German Sign Language? Concerning the cognitive competences of “theory of mind”, do these competences have an impact on the various domains of narrative competence, and if so, which domains are mainly affected? Furthermore, if we find narrative differences, do they belong to the linguistic or the cognitive domains, and what kinds of interdependencies exist?

We are comparing the results of highly hearing impaired children of hearing parents (DoH) with limited access to sign language and of Deaf parents (DoD). Here, we will present findings for a group of 12 children, who are ten years old (6 DoH and 6 DoD), because ten years old children have acquired normally basic narrative competences. On the one hand, we collected narrative data; on the other hand, we carried out tests concerning theory of mind competences, the knowledge of mental lexemes, and complement clause syntax. These data are part of a major study with four different age cohorts (7, 10, 14, and 17 years old).

First findings show that both groups are able to deal with a narrative task, but they show differences in their ways of marking the climax. Children with a delayed development in the cognitive and linguistic area produce less elaborated narratives and they adopt a less adequate orientation towards the addressee in interaction. We find a correlation between “theory of mind”-competences, the knowledge of emotional lexemes and good results in sentence repetition tests. The correlation between narrative competences on the one hand, and linguistic and cognitive competences on the other hand is less strong, but exists.

References

A case study of the development of a home sign system between two brothers

Bjerki & Raanes

This presentation reports on the language acquisition of a deaf boy born in Norway in the early 1950s. The form and variation of 300 lexicalized home signs developed within one family are analyzed and categorized in relation to theories of gesture and visual communication (Kendon, 2004; McNeill, 2005; Taub, 2004). These home signs have continued to be used within the family through adulthood.

This form of communication arose despite the advice given to parents and families of deaf children in the 1950s and the teaching methodology used at the time. Thus, to add a historical perspective, data in the form of written pedagogical course material for parents will also be brought into the analysis.

In relation to theories of signed language iconicity, these home signs exhibit structure both different and similar to signs found in Norwegian Sign Language. And the ways these home signs were produced and understood in their everyday, familiar context gives insight to processes of general language development. Examples on the ways this communication developed will be presented and discussed.

References


Use of space in five L2 learners of Sign Language of the Netherlands (NGT)

Boers-Visker & van den Bogaerde

Aspects of use of space by five L2 learners of Sign Language of the Netherlands (NGT) in a higher education program are compared in a picture description task and in a narrative interview. Aim of the study is to compare the results of both texts in order to select the best elicitation method for use of space in NGT2 learners.

This explorative study is done in order to determine the best methodology to elicit use of space by five L2 learners of NGT as a foreign language (L2) in a four year higher education program. The students had no prior knowledge of NGT and were recorded after 8 months of sign language instruction.

Use of space was elicited in two ways, students were recorded 1) while retelling a story they watched on film and 2) during an interview in NGT, filmed in the same period. All films were transcribed and analysed using ELAN. We looked at how new topics or protagonists were introduced and located in space (Covert or overt referent, Use of Index, Classifier or Locative sign) and referred back to. For the grammatical analysis we used the guidelines of the NGT Functional Analysis which is based on the ASL-SLPI (Caccamise & Samar, 2009). First results indicate that the students who show diverse grammatical use of space in the interview also show diversity in grammatical use of space in the picture description task. New recordings of the same students were done in March 2015, and will be analyzed in order to compare the results of year 1 and 2.

References


ELAN, the Language Archive. Max Planck Institute for Psycholinguistics, Nijmegen, the Netherlands. http://tla.mpi.nl/tools/tla-tools/elan/
Annotating sign language using a dedicated glyph system (the project Typannot)

Boutet, Doan, Danet, Bianchini, Renulard & Gogueli

Few systems are able to annotate sign language (SL): Stokoe Notation System, HamNoSys, SignWriting, BTS. Either they are based on symbols representing SL specific parameters — difficult to write, or they are based on linear alpha numerical arbitrary encodings. The question of annotation is widely debated and remains an essential requirement for linguistic analysis whether in the form of ID-gloss or shape description. Typannot aims at giving better typographic tools by creating a dedicated glyph system that allows users to annotate the SL parameters in an iconic way thanks to the expertise of linguists, type designers and a roboticist.

We will present the concepts and the rules behind our glyphic system and show how we are able to design 237 handshapes glyphs allowing their annotation in 10 SL (based on Eccarius & Brentari 2008). The components and the rules are limited, organized in order to maximize the system economy and learning curve, both in writing and reading (G. Noordzij 2006).

This glyphic system can annotate the other manual parameters allowing combination of handshapes, movements and location. The orientation can be deduced from information inscribed in each glyphic unit. The design of this typeface is based at least on a graphematic description of a panel of 240 signs (Bickford 2005) for 4 SL. Those three graphematic levels once unified in a common writing space should open new perspectives in researching a writing system aimed at the deaf community. This typographic system will reach a phonological level of representation in order to qualify as a viable transcription of SL.

A low-cost motion capture system (Weichert et al 2013) will be used to enrich the glyphs adding more information than configuration as speed, acceleration and orientation. We are also considering the latest font format (OpenType) to allow dynamic font features like contextual glyph replacement.

References


Acquisition of prosodic cues at intonational phrase boundaries in Hong Kong Sign Language

Cao

In the literature of prosody, it has been demonstrated that syntactic and prosodic hierarchies are mediated by the interface between syntax and phonology in natural languages (Brentari 1998), and the components within prosodic hierarchy are marked by prosodic cues facilitating adults and infants in utterance parsing (Jusczyk 1997). With regard to the acquisition of prosodic cues, empirical studies in spoken languages propose that the critical period for the acquisition of final falling intonation may be around 30 months and acquisition of prosody may complete at the age of 7 to 8 (Snow & Ertmer 2013).

Starting from these studies, this paper investigates if the acquisition of prosodic cues at intonational phrase (I-phrase) boundaries in Hong Kong Sign Language (HKSL) reinforces the preliminary observation in spoken languages. Narrative data of early learners and late learners of HKSL are compared with that of native adult. All the subjects have been exposed to HKSL for at least six and half years. Their signing is analyzed on the basis of five frequently attested prosodic markers in sign languages. They are lengthening, blink, change in head position, change in body position and change in brow position. For lengthening, it is further discussed in terms of various phonological components, namely repetitions, holds and longer movement duration (Brentari 1998).

The results suggest that early learners and late learners use less prosodic cues to mark the boundary of an I-phrase. Difference is also found in the various phonological components in lengthening between late learners and adult. Among them, the number of repetition ranks the highest in late learners.

Based on the observation, it is predicted that the acquisition of non-manual prosodic cues may take a longer time and exposure after critical period mainly influences the manual prosodic cue in sign languages.

References

[Appendix on next page]
APPENDIX

Prosodic cues at \( J \)-phrase boundaries in HKSL

\[
\begin{align*}
H_1: \quad & \left[ \left[ \text{CL: jar} \right] \circ \right] \phi \left[ \left[ \text{GLASS} \right] \circ \left[ \text{CL: jar} \right] \circ \right] \phi \left[ \right] \\
H_2: \quad & \left[ \left[ \text{CL: jar} \right] \right. \phi \left[ \left. \text{CL: jar} \right] \circ \right. \\
\end{align*}
\]

+lengthening, +blink

9 of holding frames

\[
\begin{align*}
H_1: \quad & \left[ \left[ \text{CL: frog's leg} \right] \circ \right] \phi \left[ \left[ \text{CLIMB} \right] \circ \right] \phi \left[ \left[ \text{CL: the frog climbs to the edge of the} \right. \right. \\
H_2: \quad & \left[ \left[ \text{CL: frog's leg} \right] \right. \phi \left[ \left. \text{CL: jar} \right] \circ \right. \\
H_1: \quad & \left[ \text{jar} \right] \phi \left[ \left[ \text{CL: the frog jumps} \right. \right. \\
H_2: \quad & \left[ \text{CL: jar} \right] \phi \left[ \left. \text{CL: jar} \right] \circ \right. \\
\end{align*}
\]

+lengthening, +blink

duration of the sign: 675 msec

15 of frames
+head node
+body back to neutral position

 Connie, native adult signer of HKSL

‘The glass jar, the frog climbs to the edge of it and jumps down.’
A sentence repetition task to evaluate Italian Sign Language skills in children

Caselli, Lamano, Lucioli, Rinaldi & Volterra

Studies on sign language acquisition are mostly based on spontaneous production observed in naturalistic contexts. Despite their many advantages, the sampling and transcription of children linguistic productions pose a number of methodological problems. For these reasons it would be useful to have available tools to assess sign language competence in signing children and collect data on larger samples. Sentence repetition tasks are commonly used to assess spoken language abilities, but they have been developed and used with signing children only for few Sign Languages. The present study aims to present a new sentence repetition task developed to assess language skills of children exposed to Italian Sign Language (LIS). Ten sentences differing in length and degrees of linguistic complexity were designed by a research team including deaf native signers and presented once on a laptop computer. Twenty signing children, 10 deaf and 10 hearing, attending the same school (age range 8-11 years) were individually encouraged to repeat each sentence as exactly as possible. Recorded productions were video recorded and scored as follows: exact repetition of the whole sentence was scored as correct; if the sentence included changes from the target, (omission, substitution or change from the model) was scored as incorrect and deviations were analyzed in greater detail, paying particular attention to elements such as hand configurations of classifiers, use of gaze, facial expression, signs agreement in space. All children’s (deaf and hearing) non-verbal IQ and memory span were also tested and parents were interviewed to collect detailed information on children’s linguistic background. Results show relationship between performance on sentence repetition and non-verbal memory span, as well as with other cognitive measures. Moreover, children’s linguistic skills are related to the age of first exposure to LIS and to the amount of LIS input.
IPROSLA: data sets on the acquisition of NGT as a first language

Crasborn, van Zuilen, Fikkert, van den Bogaerde & Baker

In this poster we present three data sets that are currently being archived and made accessible to other researchers. All three include longitudinal data of Dutch children acquiring Sign Language of the Netherlands (NGT, Nederlandse Gebarentaal) as a first language. Both deaf and hearing children and deaf and hearing parents are included. Two data sets were recorded in the 1990s, one was started in 2008 and is still ongoing. A few children and parents also feature in the Corpus NGT, an online corpus of adult NGT dialogues, offering a unique long-term view on language development of some people.

Data will be available through The Language Archive (TLA) of the Max Planck Institute for Psycholinguistics to other researchers who agree to the end user agreement, which enforces use solely for research purposes and limits the number of public uses of the data.
The phonology of French Sign Language (LSF): non-sign repetition and discrimination tests

Cristini & Bogliotti

Language disorders are not exclusive to speech perception: SLI is also observed in deaf signers (Mason et al., 2010). The phonological deficit is a robust marker of language disorder in vocal languages and the same can be expected in signed languages (Herman et al., 2013). Given that many morphosyntactic cues are based on signed phonology, a phonological deficit may lead to a morphosyntactic deficit. To evaluate and quantify this type of language disorder or atypical development, it is necessary to test linguistic skills. To date, no specific tests allow caretakers or researchers to assess those skills. To our knowledge, no assessment tool for LSF exists. In the wake of Courtin’s work on LSF assessment, and other sign-language assessment tools (Haug, 2008), our general goal is to develop an arsenal of tests to assess linguistic abilities in LSF.

In the present study we focus on LSF phonology. We evaluate phonological ability by using a non-sign repetition task and a non-sign discrimination task in children aged from 4 to 9. Items were contrasted on each of the five parameters: handshape, orientation, placement, movement, and facial expression. Three groups were tested: Deaf signing Children of Deaf Parents (DCDP), Deaf signing Children of Hearing Parents (DCHP) and Hearing Children of Hearing Parents (HCHP). Non-sign stimuli were used in order to measure accurately their phonological ability, while avoiding participants relying on their lexical skills. As expected, DCDP were more accurate in non-sign repetition and succeeded in discriminating contrastive pairs, compared to DCHP and HCHP. These results are discussed in terms of age of LSF acquisition and its mastery, atypical development vs. specific disorder, sign language knowledge vs. coverbal gestuality, and the contrastive impact of each kind of parameter.

References


Swimming against the tide? Hearing parents of deaf children implementing Flemish Sign Language in raising their child

Debeerst & Vermeerbergen

Two different societal trends with regard to the status of signed language are unfolding at present in Flanders, Belgium. On the one hand, following the official recognition of Flemish Sign Language (VGT) in 2006, mainstream society is showing more openness towards and support for VGT, which can be seen for example in recent legal initiatives resulting in sign language interpreting on television and an important increase in educational interpreting. On the other hand, almost all Flemish deaf babies receive cochlear implants, leading some, mainly within the medical profession but also in deaf education, to question the value of a bilingual approach and indeed, of the “usefulness” of signed language. This paper presents research on how hearing parents of deaf children deal with this dual context and the dilemma involved. Do they indeed decide to offer VGT to their child? If so, why? And, more importantly, which obstacles do they encounter when implementing this choice?

In order to answer these questions, we conducted in-depth interviews with parents of 11 young deaf children (between 1.5 and 11 year old). Next, we presented findings resulting from the analysis of these data to a (smaller) group of parents who raised a deaf child some time ago (mainly in the 1980s and 1990s). This allowed us to compare the experiences of two generations of parents.

Although individual stories differ, results do show some general tendencies. For one, it is clear that the presence of very different perspectives on deafness confuses parents. Most importantly, parents today experience a lack of support, both from the hearing and from the Deaf world. This does not seem to be the case for the previous generation. Moreover, some parents are not always aware of Deaf culture. Another interesting finding is that even those parents who perceive VGT as enriching do not always consider signed languages to be fully fledged languages. We will present these and other results in our talk.
Modality-specific patterns in the development of joint attention in infants acquiring sign language natively

De Vos, Hilbrink, van Zuilen & Levinson

Long before infants have mastered the dedicated linguistic structures to perform adult speech acts, they have a basic understanding of social actions as evidenced by their ability to engage in joint attention and social exchange. While this social-cognitive development appears to be a crucial component of bootstrapping into language, little is known regarding the role that language modality might play in this story.

This study compares the development of communicative action and joint attention in deaf and hearing infants acquiring Sign Language of the Netherlands (IPROSLA corpus) with hearing infants acquiring spoken English (First Steps project). Video transcriptions are based on 10-minute segments of communication-dense interaction of three infants from each corpus at 9, 12, and 18-months of age in interaction with their parents. The signing sample includes one deaf child, one hearing, and one with a Cochlear Implant. Our coding scheme identifies the following communicative actions as well as their contingent responses: giving, summoning, recruitments, questions, and offers. We also coded for the various communicative strategies through which these were instantiated. We identified 2,273 communicative actions in the parents, and 1,660 communicative actions in the infants.

While the action types appear in identical orders for each of the datasets, explicit summons are more prevalent in the signing sample; moreover, signing but not speaking infants show a clear developmental trajectory of learning to respond appropriately to summons. Furthermore, from 12 months onwards, deaf children initiate eye-contact during their communicative actions four times more frequently than the speaking children. This finding is consistent with previous work (Lieberman et al. 2014) and extends it to younger ages.

The finding that establishing eye-contact plays a larger role early in development for signing children, suggests that experience with signed interaction may lead to qualitatively different development of joint attention in deaf and hearing infants.

References
Language switch cost in bimodal bilinguals: Is there a price?

Dias, Villameriel, Costello, & Carreiras

This study investigates the switch cost effect across two different modalities of language: spoken and sign language. The switch cost effect has been studied for different groups of (unimodal) spoken language bilinguals and demonstrates that it is harder for these bilinguals to switch from their weaker language (L2) to their stronger language (L1) (Meuter & Allport, 1999). This finding supports the idea that language selection in bilinguals involves inhibiting the language not in use: the L1 requires a greater degree of inhibition and more effort is required to remove this inhibition resulting in a larger switch cost in this direction. Given that bimodal bilinguals use languages which do not compete for the same articulatory channel, it has been suggested that language switching in bimodal bilinguals is qualitatively different to that of unimodal bilinguals (Emmorey, Borinstein, Thompson, and Gollan, 2008).

In order to investigate what kind of language switch cost appears in bimodal bilingualism and whether bimodal bilinguals show the same asymmetry patterns seen in unimodal bilinguals we selected highly proficient bimodal bilinguals and used a color naming language-switching task. The results show an asymmetrical cost for bimodal bilinguals based on reaction times and accuracy of responses, with a greater cost (longer reaction times and more errors) associating with switching into the stronger language (in this case, the spoken language). We discuss the consequences of these results for language production in bimodal bilinguals. We suggest that the asymmetric switch cost provides evidence that inhibition is at play and as such the two languages do compete with each other at some (pre-articulatory) level. Also, the challenges in adapting the paradigm of language switching tasks to bimodal bilinguals are also pointed out as important for future studies.

References

Multiple perspectives in constructed dialogue

Forster

„Multiple perspectives“ in this context describes the perspectives of the observer and the character in a story which appear simultaneously during a narration. This phenomenon can be detailed in a signed story by the using of the manual and nonmanual articulator. This presentation focuses on constructed dialogue (CD) as a subform of constructed action (CA) and the representation of the referents. Parallel signing with the left and right hand are very important to assign a perspective (observer or character perspective). A further tool to create a multiple perspective is the use of nonmanual articulators like mimic, mouth action, eye gaze and also head – body position. All these articulators can be combined to represent not only ONE referent, but TWO or more referents in simultaneous signing. I will show some results of a longitudinal study of deaf pupils in a school with bilingual teaching. Deaf students aged from 7;6 to 18;6 were filmed over a period of nine years while retelling a story in Deutsche Gebärdensprache (DGS – German Sign Language). The research is part of an ongoing Ph.D.– project and focuses on the creation and use of multiple perspectives and their formal features at different ages of the participating students. Simultaneous presentation of different referents and the complex structure of multiple perspectives in combination with CD can be observed at various ages. But at the age of 9;6 we can detect the first correct use thereof. At the age between 11;1 to 13;0 in the context of constructed dialogue, the use of depicting signs/classifier constructions for animated entities is more frequent than the use of depicting signs for objects/inanimated entities. This differences points to a possible developmental path and will be discussed.

Two examples of simultaneity by adults:
Development of L1 reference tracking after childhood: Knowing the pieces but not where they fit in the puzzle

Frederiksen & Mayberry

Narrative proficiency in one’s first language requires creating coherence. Proficient signers/speakers vary linguistic forms with saliency of the entity in the discourse, but children struggle with this principle until age 8-10\(^1\). In this study, we asked how reference tracking looks when acquired initially after childhood.

We elicited narratives from three cases (deaf adults who acquired ASL in adolescence) and compared their results with eight Deaf native signers retelling the same stories. Based on previous work, we hypothesized that the cases would have little difficulty with classifiers and nouns, but would struggle with agreement verbs\(^2\). We coded referring expressions from the natives (N=452) and the cases (N=178) for discourse status (introduced/maintained/reintroduced\(^3\)), and linguistic form (noun/pronoun/spatially modified zero anaphor/non-spatially modified zero anaphor/classifier). We computed standardized scores for each case by category and discourse status based on mean proportions and standard deviations for each category for the native signers. Choosing two standard deviations from the mean as our cut-off point, we found deviations from the native pattern in the use of spatial modulation of zero anaphora by two cases. While native signers used verbal spatial modulation frequently, the two cases never used this referential strategy. The third case tracked reference much like the native signers, excepting the use of classifiers to reintroduce referents. This strategy was used frequently by all three cases, but never by native signers.

These results support previous findings, suggesting that agreement verbs, but not classifiers, are hard to acquire for late learners. However, our data also suggest that the ability to produce certain referential expressions does not entail being able to use them appropriately in narratives. Despite signing for 6-30 years, the cases’ limited mastery of ASL coherence shows that delayed L1 acquisition has life-long consequences for narrative proficiency.

---

\(^1\) Karmiloff-Smith, 1985  
\(^2\) Morford, 2003  
\(^3\) Gullberg, 2006
Eye gaze accompanying pointing in bimodal bilingual language development

Gokgoz, de Quadros, Oliveira & Lillo-Martin

We examine eye-gaze behavior of Bimodal Bilingual (Bibi) children and adult interlocutors during pointing in speech- (interlocutors hearing bilinguals) and sign- (interlocutors Deaf signers) target sessions. Our report compares aspects of pointing in 4 speech- and 4 sign-target longitudinal sessions from one Bibi child in the United States [BEN, 2;00-3;00] and 3 speech- and 3 sign-target longitudinal sessions from one Bibi child in Brazil (EDU 2;00-3;03).

Most work on pointing is concerned with where the hand points, but eye gaze can co-occur with a manual point – either directed at the same referent or object, the addressee, or something else. Lieberman et al. (2014) examined the use of eye gaze with signs during book reading and playing with toys by Deaf signing children (with Deaf parents) versus Hearing English monolingual children. They found that gaze to addressee was almost nonexistent with their hearing group, and that shifting gaze from the addressee to the object, or vice versa, is used as a modality-specific mechanism for joint attention among the signing children and their interlocutors.

Our results show that Deaf signing adults were fairly even split between gazing to their addressee, gazing to the object being pointed at, and gaze shifts. The hearing (bilingual) interlocutors were more likely to gaze to the object. As a whole, the Bibi children primarily gazed at the object, but they used gaze to the addressee and gaze shifts more than the hearing children in the Lieberman et al. study, and even more so in sign target sessions than in speech target sessions.

If our hearing Bibi participants behaved like hearing monolinguals during speech target sessions, we would expect them not to use gaze to the addressee or gaze shifts in these sessions, contrary to our findings. Instead, they use gaze while pointing in ways influenced by their sign language.

References
Contrastive Focus in Children Acquiring ASL

Gokgoz, Palmer & Lillo-Martin

We investigated contrastive focus in children acquiring ASL. Our data included 6 target signs in two experimental conditions: contrastive focus (cf) and no-contrastive-focus (ncf), produced by 10 children (4;07-8;06, mean-age 7;04). We analyzed 80 units (40 signs under cf and 40 signs under ncf). The data were collected in a laboratory setting with three parties involved: the child, the Deaf experimenter and a pre-recorded signer displayed on a computer screen. Children were presented stories with animations. Immediately after the presentation of a story, children were asked to retell what happens in the story (ncf environment). Later, they were instructed to watch the pre-recorded signer retelling the relevant part of the story. Target units under cf were obtained when a child would correct the third party’s erroneous production of the relevant part of the stories. Sign durations in ms have been coded for target items in ELAN (MPI for Psycholinguistics). The data were controlled for the position of the cf and ncf targets (phrase-initial/medial/final and stand-alone). A two-tailed t-test revealed a significant difference between the durations of cf and ncf targets (cf: M = 0.9998, SD = 0.61944, SE = 0.09794; ncf: M = 0.65766 SD = 0.37361, SE = 0.05907; p = 0.00372). Literature has reported significance of vowel duration for marking prominence in spoken languages (Hyman 2006). Similarly, ASL-signing children also used this cue to prominence. They produced increased sign duration by (i) use of repetition, (ii) recruiting more proximal joints, and/or (iii) holds followed/preceded accompanied by intense movement. These prosodic prominence cues were often accompanied by body-lean forward (Wilbur and Patschke 1998) which we interpret as a strategy for cognitive involvement/commitment in addition to a need for longer durations. Thus, our results have implications for both the expression (prominence) and function (cognitive involvement/commitment) for contrastive focus in ASL.

References
http://tla.mpi.nl/tools/tla-tools/elan/

On the acquisition of classifiers in 5 – 6 year-old Deaf children

Hammer, Nijen Twilhaar & van Loon

Introduction
Classifiers are handshapes (sometimes combined with a specific orientation) that, when combined with the other parameters of movement and location form a ‘verb of motion or location’. There is a limited body of research available on the acquisition of classifiers by children. The available studies have focused on deaf children of deaf (DOD) parents, who are native signers. Results show that classifiers emerge at 3 years and approach an adult like level at the age of 9 (Beal Alvarez & Easterbrooks, 2013). This small study was set out to investigate the production of classifiers in DOH children who acquire Sign Language of the Netherlands. Our expectation was that DOH children produce classifiers, but fail to use them correctly in all instances due to lack of pragmatic control (Slobin et al., 2003).

Method
Four children (two girls, two boys) were recruited at a school for the Deaf in The Netherlands (5;10 – 6;8 years). All children were deaf or severely hearing-impaired from birth. Children used (sign supported) Dutch at home and sign language at school and had approximately three years of exposure to sign language. Narratives (Frog-story) were recorded. The recordings were transcribed and analyzed using ELAN-software. Analysis focused on type of classifier (entity and handling) and accuracy in production.

Results
The children produced 22 classifiers in total, 20 entity classifiers and 2 handling classifiers. Ten percent of the entity classifiers was incorrect; the handshape to express the entity did not match the handshape frequently selected for that entity.

Conclusion
DOH children produce classifiers after three years of exposure to sign language. Errors in classifier production involved errors in handshape selection. This compares to type of errors frequently found for DOD children. Results will be discussed in relation to the iconic and gestural properties of classifiers (Cormier et al., 2012).

References


A preliminary investigation of SCSL (Shanghai variant of Chinese Sign Languages) content question

Hao

This paper investigates the construction of content questions in the Shanghai variant of Chinese Sign Languages (SCSL), attempting to provide a full description of the manual and non-manual markers and a preliminary discussion of their grammatical roles and function in content questions.

No previous research on this topic has been found so far. However, there is some research on question and negation in the relevant Hong Kong Sign Language (HKSL), which was assumed to be a kindred sign language of SCSL. Tang (2006) focused her discussion of content question in HKSL on manual and non-manual markers. Two generic content signs are found in HKSL, one of which is articulated by a 1-handshape, the other of which is formed by an open 5-handshape. The former, involving a pivoting motion of the wrist, can be roughly translated as “who, whose, what, which, why, where, and how” (some of which is constructed by a compound of 1-handshape with another lexical sign); the latter is articulated by an open 5-handshape with the fingers in a wiggling motion, glossed as “how many/much” mainly used to question the measures and quantities. And the combination of it with other lexical signs can also express the concept of time. On the other hand, as far as she found that brow position is obligatory in content questions. A frequent use of brow raise and eye-gaze at the addressee as markers is also detected. Chen(2012) also explored content questions in Taiwan Sign Language (TSL), discussing the their communicative function under the framework of a conversation analysis theory. Both naturalistic and elicited method of data collection is applied. In elicitation, we use pictures and guessing games as stimuli to guarantee the quality of the data. And transcription is made with the supervision of native signers. 41 clips amounting to 8 hours have been collected, annotated and analyzed. 307 content questions have been detected. We have found in SCSL the 1-handshape and wiggling open 5-handshapes functioned as manual markers of content questions. A sign symbolized by index finger wiggling is found to account for 154 occurrences, nearly 50% of the whole, which is semantically rich and can be regarded as basic question. Other 20 question signs are functionally simple. However, their semantic distribution is different from those in HKSL. A case in point, ‘who’ in SCSL is articulated by an open 5-handshape wiggling over the nose. Besides, a L-handshape sign is also found to perform the roughly function of ‘how’, which seems to be influenced by Shanghai spoken dialect. Syntactically, we have not found WH copy in SCSL, and WH normally appears at the right end of the sentence. However, there is some exception, which is discussed by the consideration of the contextual meanings. And Chinese mandarin is believed to have some influence on the syntax of content question in HKSL. As for the non-manuals in content questions, no compulsory feature is discovered. Brow movement involves both brow raising and brow lowering, and head tilt is also an important marker. We prefer to compare the function of the non-manuals to intonation in spoken languages. Besides, eye gaze and body lean are also found accompanying content question sentences, however, they seem to be discourse markers.

References

Development and evaluation of a sentence repetition test for Swiss German Sign Language

Haug, Notter, Girard, & Audeoud

Sign language test development is motivated by the practical need for assessment instruments to evaluate language development in different groups of learners (L1, L2). Due to the lack of research on the structure and acquisition of many sign languages, constructing an assessment instrument poses methodological challenges to test developers. An additional challenge is the small size of the target population and the considerable diversity of its linguistic experience - issues that impact the reliability and validity of a test instrument. All these issues also apply to the development of a sentence repetition test for Swiss German Sign Language (DSGS).

We will report from an ongoing research project that aims at developing a sentence repetition test (SRT) for DSGS targeting at (a) deaf children 6-12 years old and (b) adults. The SRT for DSGS is based on SRTs for American, German, British, Swedish, and Italian Sign Languages which have been developed for adults and children, respectively. The sentences of the DSGS version represent linguistic structures such as agreement verbs, classifier constructions, constructed action, and negation. A panel of experts consisting of deaf sign language instructors experienced in working with deaf children provided feedback at the different stages of test development before the test was piloted. We conducted three different pilots: (1) on the usability of the test with native signing children (N=3; 8;9-11;5 years old), and (2) deaf adults (N=3), and (3) judging the level of difficulty of the sentences by deaf adults (N=5). The results of all three pilots formed the basis to (1) reduce the number of sentences (from 76 to 40), (2) make some changes to the testing protocol, and (3) refilming of some sentences.

For the main study 50 deaf children and adolescents (6;4-18;6 years old) were tested. The preliminary results of a sub-sample of 15 deaf children (6;11-14;4 years old) indicate descriptively a slight trend that older children perform better than younger children on the SRT, independent on the hearing status of the parents. A more detailed analysis is currently underway. The results will inform for a revision of the current version of the DSGS SRT.
Late acquisition of resultative constructions by bimodal bilingual deaf children in China

He & Tang

1. Research question:
What are the effects in the late acquisition of resultative constructions in Chinese Signed Language (CSL) by a group of bimodal bilingual deaf children in China? Are there any interactions between the developing grammars of CSL and Mandarin Chinese?

2. Empirical methods:
A group of late deaf learners studying in deaf school settings in China participated in the experiments. They did not wear any hearing aids or cochlear implants and were exposed to language (i.e. CSL and written Chinese) only when they entered the deaf schools at around age 7. In addition, they were also exposed to manually coded Chinese (i.e. MCC) as the language of communication in the classroom. A picture description task was adopted to elicit 16 types of RVCs in CSL and written Mandarin Chinese.

3. Results and conclusion
The first stage of CSL development manifests itself in the change of the deaf children’s production from gesturing an action to encoding it with a lexical verb for the causing event and the result, thus reflecting either a biclausal structure (i.e. SVO, OV) or a monoclausal SVOV. For instance, “BOY HIT GIRL FALL”. The second stage involves a change of word order, in which the shared internal object appears preverbally. During this stage, V1 is no longer lexical but constituted by a classifier predicate, resulting in an OSVV or SOVV order. The SVOV word order at the initial stage cannot be due to the influence of MCC or written Chinese because in Chinese, SVVO is the target word order. Subsequent testing of their production of resultatives in written Chinese showed similar error patterns of SVOV, which is not allowed either in CSL or MCC, and neither is it observed in the monolingual mandarin speaking children. We argue that such non-target SVOV order found in both signed language and written Chinese reveals that their acquisition follows certain underlying linguistic constraints which might be observed in other natural languages like English that adopts an SVOV/A order for resultative constructions.

References


[Appendix on next page]
Appendix I Background information of the subjects

<table>
<thead>
<tr>
<th>Group</th>
<th>No</th>
<th>Year of SL exposure</th>
<th>Chronological age</th>
</tr>
</thead>
<tbody>
<tr>
<td>D4</td>
<td>6</td>
<td>15 yrs</td>
<td>7-9</td>
</tr>
<tr>
<td>P4</td>
<td>6</td>
<td>15 yrs</td>
<td>9-11</td>
</tr>
<tr>
<td>P5</td>
<td>6</td>
<td>15 yrs</td>
<td>12-14</td>
</tr>
<tr>
<td>P6</td>
<td>6</td>
<td>75 yrs</td>
<td>14-17</td>
</tr>
<tr>
<td>D9</td>
<td>4</td>
<td>6 yrs</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Native deaf adult: He is exposed to natural signed language since birth.

Appendix II Organization of the Stimuli

<table>
<thead>
<tr>
<th>Argument structure</th>
<th>subj</th>
<th>Obj</th>
<th>Taxonomy of CL1</th>
<th>No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 place (agent/cause+patient)</td>
<td>agent</td>
<td>Inanimate patient</td>
<td>init action sign</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Animate patient</td>
<td>hdlg</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>entity</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inanimate patient</td>
<td>init action sign</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>hdlg</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>entity</td>
<td>2</td>
</tr>
<tr>
<td>3 place (agent+instrument+patient)</td>
<td>agent</td>
<td>Inanimate patient</td>
<td>hdlg</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>entity (concrete entity)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>entity (natural force)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>hdlg</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>entity (concrete entity)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>entity (natural force)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>instr_hdlg</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>instr_entity</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>body part</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>instr_hdlg</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>instr_entity</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>body part</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>
Language choice strategies of deaf parents communicating with their hearing children

Hofmann

First results of a German pilot study on sociolinguistic aspects of the communication in families with deaf parents and hearing children

Hearing children of deaf parents (codas) develop their languages bimodal-bilingual within a minority-/majority constellation. In bilingual acquisition contexts, the children’s language development is strongly influenced by parents’ language choice strategies (De Houwer 2011). As current studies show, deaf parents blend their languages more than use one language consequently (Baker & Van den Bogaerde 2008). With respect to German codas, only little is known about their linguistic environment and language choice strategies of the parents. Due to its bimodal and bicultural characteristics, the acquisition background of codas provides large variations and thus requires (descriptive) research.

The study investigates the sociolinguistic aspects of the communication in four families. Language choice strategies of the deaf parents are recorded systematically within natural interactions with their hearing children. Data are analysed quantitatively and qualitatively with respect to one language or code-blended utterances. Sociolinguistic aspects are investigated with an online questionnaire. Furthermore, actual changes in life environment are assessed with a short interview previously to every recording session. Since this study aims to describe the linguistic behaviour of the parents, only the children’s language dominance is assessed, using an adapted version of the PaBiQ (Hamann et al. 2010).

The poster presents first results of an ongoing PhD project. Except for one child that develops its languages balanced, all codas show a clear dominance for spoken language. Three parents use code-blends to a frequent amount, most of them are full blends or spoken language based. Sign language utterances can be observed in only one family. The poster illustrates the sociolinguistic background of the families. Since this is an ongoing project, possible relations between crucial sociolinguistic aspects (e. g. sociocultural situation, language biography of the parents, language loyalty), the context of the interactions (e. g. play materials) and parent’s language choice strategies are only preliminary and thus discussed carefully.

References


Families with deaf parents and hearing children in Finland and Germany -
A comparison of two pilot studies on the linguistic environment of hearing children of deaf parents

Hofmann & Kanto

Kodas (kids of deaf adults) acquire sign language and spoken language within BFLA or second language acquisition. However, some kodas show low skills in sign language (Preston 1996), which might be caused e.g. by its minority language status, being more vulnerable to environmental influences, such as language choice of the parents (Meisel 2011). Previous studies point to a frequent amount of code-blending in these families (Baker & Van den Bogaerde 2008). However, there is clear lack of studies that focus more on different features in the linguistic environment of kodas (e.g. language biography of the parents, attitudes towards bilingualism, access to deaf and hearing community). Thus, the aim of this study is to identify cross-cultural features in linguistic environment and language acquisition of kodas living in Germany and Finland.

We present similar aspects of two pilot studies and compare three German and eight Finnish kodas between the ages of 24–36 months. The linguistic environment of the children is assessed with parental interviews. For the development of early vocabulary of the kodas the German and Finnish version of the CDI are used. Language choices and code-blending of the parents are analysed quantitatively from the videotaped natural family interactions.

We found that two German and four Finnish deaf parents use code-blends predominantly. One German family and four Finnish families use sign language exclusively. With respect to language development, one German koda and four Finnish kodas demonstrate a balance or sign language dominance in their language development. The other children are more advanced in spoken language and show a slower sign language development.

We relate the results to crucial aspects of the linguistic environment and discuss relations with respect to socio-cultural conditions in the countries for the communication in families with deaf parents and hearing children and derive implications for further research.

References


Why we need to understand the age related knowledge of ASL between DCDP and DCHP

Hoffmeister, Henner, Fish, Rosenburg & Kourbetis

Once a Deaf child reaches school, the measurement of ‘language’ is conducted via print or spoken language. This creates a problem for those who are interested in recognizing and evaluating the full language capabilities of Deaf children. Print and signed language is fully accessible to the average Deaf child but spoken language is not. A signed language is the language that most Deaf children acquire. Our work is based on the premise that a Signed Language (ASL in our case) is the L1 of Deaf children whose hearing loss significantly impacts their learning of a spoken language particularly in Deaf children of Hearing parents (DCHP).

We need to gain a full understanding of the language capability of Deaf children. We are particularly interested in identifying the ASL knowledge at different ages of two distinct groups involved in the acquisition of ASL, Deaf children of Deaf parents (DCDP) and DCHP. DCDP’s ASL acquisition parallels spoken language acquisition presenting a baseline group for expected age related ASL development. Understanding this development has tremendous impact on how and what we expect Deaf children in general to achieve. DCHP develop their signed language through a wide variance in input and background. We are expecting to identify age related knowledge of ASL by two groups within DCHP: 1) those who were delayed in their exposure to a signed language (ASL), 2) those who are exhibiting a delay that may be due to a learning disability to some type of language problem.

It is our plan to present the development of age related knowledge in ASL in both DCDP and DCHP and discuss the impact of our results on educational policies and approaches to research.
The emergence of argument structure

Hou

This paper investigates how second-generation deaf and hearing child signers in an extended family co-opt existing input from the pointing gestural inventory of the larger speech ecology for argument-marking structure with a focus on directionality from first-generation older signers in an indigenous Mesoamerican (Chatino) village in southwestern Mexico.

Data comes from ongoing longitudinal fieldwork that will span 9 consecutive months of videotaped observations of spontaneous conversations between deaf and hearing signing children and their interactants. Coding and analysis follow previously established conventions from research on home sign systems in the U.S. (Goldin-Meadow 2003) and Nicaragua (Coppola 2002).

Home sign systems and young sign languages are reported to favor one-argument clauses and to require at least one generation to develop two- and three-argument clauses for describing transitive events with two animate participants (Goldin-Meadow 2003; Meir et al. 2012; Sandler et al. 2014). Such clauses may be a prerequisite for the development of full-fledged directional verbs, also commonly known as agreement verbs and indicating verbs. Naturalistic data from Chatino Sign Language, an emerging sign language, suggest that two-argument clauses do appear in a first-generation signer like RE, age 18 (1), and are not necessarily a later development of a home sign system. They also appear in young second-generation signers like MI, age 4:6 (2). Furthermore, MI, like AP (5:3), can produce one-argument clauses with adjuncts (3).

(1) RE: IX:PRO3a IX:PRO3b IX:PRO3a aPUSHb IX:PRO3b
  ‘Shea was there, sheb was there, shea pushed herb,’

(2) MI: IX:PRO1 PUSH IX:PRO1 … IX:PRO1 PUSH IX:PRO1 IX:PRO3[AP]
  ‘Me, (she) pushed me … me, (she) pushed me, she did.’

(3) AP: … IX:PRO1 FALL-DOWN IX:LOC-BODY[FOREHEAD] IX:PRO1
  ‘I fell down on my forehead, I did.’

However, two-argument clauses frequently occur with pronominal arguments, even for directional verbs (4).

(4) MI: IX:PRO3[BROWN-PUPPY] IX:PRO1 NAME-SIGN[RE] 
  ‘RE (will) give me the brown puppy, she (will) give the black puppy to the man.’

Such clauses seldom occur with full nominal arguments, especially for both agents and patients, suggesting that the emergence of the argument structure builds on pointing gestures. Pointing, in turn, can serve as a bridge for the development of directionality.

References


This paper shows the applicability of discourse ethics in shaping the triad of language as constitutive contribution to the development of edusemiotics. The work seeks to create a theoretical applicability of the theory Apel, from the constitutive analysis of educational discourse, with reference to the communication systems. According to Apel (2002), the communicative function requires a great understanding from the various phenomena occurring therein. For Apel (2008), the only way of understanding language is through consensual communicative rationality. In this sense any communicative act must overcome intentional and truth components. For Apel (2008), continuing the line of Habermas, the language component refers to adaptability conditions in actions. This idea is based on its position of a transcendental philosophy of language "in the sense of a critical reconstruction and transformation of a prima philosophia founded by Kant, which aims to answer the question of the conditions of possibility of valid argument (Apel, K. 2008 p. 115). For that reason sense, Apel uses three language functions Bühler (expository, expressive and appellate) from the three-dimensional world (the world of objects, social world and inner world). With this integration Apel (2008) mentions the need to understand communicative acts as phenomena that are integrated into the criteria of validity or valid argument. With this perspective, the author presents a tripartite formula to know if the validity is consolidated, as exemplified illocutionary acts. The tripartite formula Apel (2008) returning to Habermas is:

"The meaning of illocutionary acts" can be seen from the "three dimensions of possible validity":

1. Claim referred to the objective world, whose carriers are affirmed prepositions of constative speech acts or assertoric.

2. Claim of right of speech acts in terms of communicative acts, with reference to the rules (legal and moral) of the social world, which pose a claim against the recipients.

3. Claim of truthfulness or sincerity of talk acts as expressive self-manifestation that expose some of the inner world, subjective speaker.

Being clear about these three configurations can be said that the speech, to be valid, must unite or be integrated in three dimensions. In sum, when analyzing a communicative act must take into account the criterion of validity in three dimensions set out above. For these reasons, the paper shows how to articulate the theory of APEL as a communicative model processing in educational events, from a semiotic perspective transcendental.
Methodological implications for measuring language dominance among young bimodal bilingual children

Kanto

The two languages bilingual children acquire hardly ever develop in perfect synchrony and often they are more competent in one language than the other. The language dominance (i.e. relative proficiency) in bilingual children has been found to effect on many features in their language production, code-mixing and cross-linguistic influence. Thus, the knowledge on the language dominance of bilingual children provides important information on their general language competence and can explain features in their language production. The aim of this study was to provide methodological implications for evaluation the language dominance of KODAs (Kids of Deaf Adults) by using tools adopted from previous studies on bilingual children and describe how the language dominance was manifested in the language acquisition and production of children studied.

Language acquisition of eight KODAs acquiring Finnish and Finnish Sign Language was observed longitudinally every six months between the 12 to 36 months of age. Data were collected from three sources: parental interviews to evaluate language exposure and CDI to evaluate the productive vocabularies in both languages. From the video-recorded play sessions between the deaf parent and hearing child the mean length of ten longest utterances (MLU10) (Van den Bogaerde, 2000) and rate of mixing were evaluated.

Of the measures used, the CDI and MLU10 together indicated children's language dominance in most uniform way. The results showed that four children had sign language as their dominant language and four children had spoken language as their dominant one. The language dominance was illustrated in the number of produced signs and words in CDI, in MLU10 and the use of code-mixing. The four children with sign language as their dominant language produced more signs according to CDI, used longer sign language utterances according to MLU10 and used higher number of code-mixed utterances than other children studied.

References
Language choice and code-blending of hearing children of deaf parents

Kanto

KODAs (Kids of Deaf Adults) acquire simultaneously sign language and spoken language. Due to their bimodal bilingualism it is easier to detect already from the early age the language KODAs are using at each moment when compared with young bilingual children acquiring two spoken languages. Additionally, KODAs are able to produce signs and spoken words simultaneously (i.e. code-blend) but the patterns of their code-blending have often been regarded as a sign of deviant linguistic structures. Recent studies on childhood bilingualism have started to regard code-mixing as a natural resource with systematic structure which children express themselves more fully and effectively. Thus, the aim of this study was to explore the language choices and code-blending of KODAs to deepen our knowledge on bilingual language acquisition and provide more information on the features of code-blending as a sign of flexible language creativity and bilingual proficiency.

Language acquisition of eight KODA children was observed between 12 to 36 months of age every six months in three different play sessions; with their deaf parent, with deaf parent and a hearing adult, and with a hearing adult alone. From the video-recorded play sessions children’s syntactic complexity (measured with the MLU), language choices and code-blending (based on the study of Baker & Van den Bogaerde, 2008) was analyzed. The productive vocabulary in spoken Finnish and Finnish Sign Language was measured with CDI.

Children accompanied their language use already at the age of 12 months according to the language of their interlocutor. Around the age of 24 months children increased the use of code-blends. They combined semantically equivalent word(s) and sign(s) with each other and prevented not to violate the grammar of the participating languages. These results indicated the children’s linguistic and communicative competence and their capacity to actively and simultaneously process the languages acquired.

References

Incidental ASL and BSL second language learning and teaching for Deaf children in Germany

Kaufmann, Griebel, Klinner & Kaul

In Germany, it is standard practice for all schoolchildren, including d/Deaf children, to be taught English as a foreign language in school, starting at a young age. However, the teaching of foreign sign languages for d/Deaf children is not prioritized in a comparable way. There is very little research on the foreign language learning, whether spoken languages or sign languages, of d/Deaf children in Germany (Hausen, 2014). In a larger project focusing on the state of North Rhine-Westphalia, in which English classes begin in the first year of elementary school, we assess English teaching and learning for d/Deaf children. As part of the larger project, we examine the use of signing as the medium of instruction for English lessons. Depending on their individual background, teachers use as the medium of instruction either German Sign Language combined with English mouthings, American Sign Language (ASL), British Sign Language (BSL), or manually coded English with ASL or BSL signs (cf. Poppendieker, 2011). This paper focuses on d/Deaf schoolchildren’s incidental learning of ASL and BSL in English class and assesses other sources of incidental sign language learning including clubs at school, the internet, and international contacts. Using interviews and surveys, we examined the teachers’ and the schoolchildren’s motivations and teaching/learning strategies, and we collected initial data on the schoolchildren’s knowledge of ASL and BSL. This research is an important first step in the empirical investigation of d/Deaf children’s learning of sign languages as second languages in Germany.

References


Whaddaya know?: Effects of exposure to a Sign Language on seeing another one

Koulidobrova & Palmer

We investigate deaf learners’ ability to recognize linguistic contrasts in a second language in the same modality (M1L2). 12 males (agemean=15;03) from United Arab Emirates, in their 2nd year of residence/attendance at American School for the Deaf (USA) and no previous exposure to ASL; 10 deaf, 2 hard of hearing. 10 have home-signing deaf family members and learned ambient SL (EmiratiSL/ArabicSL) in late childhood (agemean=7;03); 2 began learning both ASL and EmiratiSL concurrently.

A paired-comparison discrimination task (ASL-DT, Bochner et al. 2011) was used. 48 minimal pairs containing contrasts in morpho-syntax (agreement, number-classifier-incorporation) and phonology (movement/handshape/orientation/location) were presented in sentence contexts. Analysis per category was conducted and compared to the groups at various levels of ASL proficiency in Bochner et al.: hearing beginners and intermediate learners of ASL (M2L2), and native users (L1).

The mean proportion of correct answers was not due to chance (Ptwo-tailed=.059). M1L2-ers performed as beginners: they significantly underperformed the intermediate M2L2-ers (ptwo-tailed=.11), and while they consistently scored higher than M2L2 beginners, the difference regarding the proportion of correct answers between the M1L2-ers and the beginner M2L2 group was not significant (ptwo-tailed=.63). However, regarding error rates per type of question, M1L2-ers patterned differently. Results indicate that while for M2L2 group, the difficulty in discriminating ASL can be described along the hierarchy location>orientation>handshape>morph. change>movement, this does not hold for the M1L2 group. For M1L2-ers in our study, the difficulty progression is location>movement>handshape>orientation>morph. change, which is more consistent with previously reported data on native Deaf ASL signers (Hildebrandt & Corina 2002). Further, many phonological changes due to dialectal variation were treated as meaningful contrasts.

Previous exposure to a SL boosts perception of categories which are otherwise difficult for L2 learners of a SL, but signers are sensitive to phonological changes that have potential to result in a new meaning.

References


The adaptation of British Sign Language (BSL) Receptive Skills Test into Polish Sign Language (PJM)

Kotowicz, Woll, Herman, Lacheta & Schromova

Valid and reliable assessment tools are needed to monitor progress in child sign language acquisition (Emmorey, 2002). At present, no tests exist for the evaluation of Polish Sign Language (PJM) development in children. For this reason we begun working on an adaptation of the British Sign Language Receptive Skills Test (BSL-RST) into PJM, following the adaptation guidance provided by Haug (2011). The goal of this research was to prepare the BSL-RST adaptation into PJM and to evaluate its psychometric parameters, especially the reliability and the validity. In the pilot study the reliability coefficient Cronbach’s alpha for deaf children PJM users (N=20 age: M=9;2, SD=1;9, min=6;1, max=12;8) on all items (N=47) was \( \alpha = .772 \), this result is considered to be acceptable. The Spearman-Brown corrected split-half reliability analysis was \( r = .780 \). Because of lack of other assessment tools measuring PJM skills in children, we correlated PJM-RST scores with reading comprehension test in Polish (\( r = .73, p< .001 \)) in order to investigate the validity. This comparison was based on previous studies on positive relationship between sign language competency and reading skills (Chamberlain & Mayberry, 2008). The adapted test was sensitive to age: the Pearson correlation between PJM-RST and chronological age was significant (\( r = .64, p < .01 \)). The psychometric parameters of adaptation of BSL-RST show its value as an assessment measuring PJM skills in children; however the future research should include larger sample of children.

References


Phonological discrimination by bimodal bilinguals and children with cochlear implants

Kozak, Rebello Cruz, Lemos Pizzio, De Quadros & Pichler

Studies of children with cochlear implants from hearing families (CIH) have consistently found that they perform behind their hearing peers for speech perception. On phonemic discrimination tasks, CIHs were found to exhibit shallower discrimination functions than hearing children (Geizen 2011). However, there are children from Deaf, signing families with implants (CID). They have unrestricted access to sign language from birth. This study looks at whether this early exposure will result in superior performance for CIDs over CIHs in speech and sign.

Bimodal bilingual children (koda) and CIs from America and Brazil were tested on both spoken and signed phonemic discrimination tasks. The American group contained kodas and CIs from Deaf families (CID), while the Brazilian group contained kodas, CIHs, and one CID.

The data from both countries had similar findings for the koda participants on the spoken task. Correct discrimination for both tasks increased as the age of participants increased, with children from 6;0 onward looking adult-like. For the American and Brazilian CIDs, their scores were within the same range as kodas in their age group. The Brazilian CIH children, conversely, struggled with the task, and the child that completed the test displayed inferior accuracy (27.5%) to the CID participant (87.5%).

The signed task had similar results to the spoken task. Accuracy increased with age for the kodas, and the CID children’s scores fell within the ranges for kodas of their age. The CIH children performed with significantly lower accuracy to the other groups in this task as well, though they were more accurate on this task than the spoken one, suggesting a possible preference for the visual channel, despite their limited sign language exposure.

Findings here match similar ones from Hasanzadeh (2012), which found that CID children have an advantage over CIH children in speech perception, based on their early sign language exposure.
Building up L2 Corpora in different signed languages – SSL, ISL and ASL

Krister & Schonstrom

In contrast to years of extensive teaching in the second language (L2) programs of signed languages, there has been a lack of research on signed languages as L2s, specifically with respect to the area of second language acquisition (SLA). With the goal of expanding research on SLs as L2s, we began a collaboration in 2013 with the aim of developing three parallel L2 corpora based on three different sign languages: Swedish Sign Language (SSL), Irish Sign Language (ISL) and American Sign Language (ASL).

The primary aim of the project was to develop longitudinal L2 corpora by collecting data from adult hearing L2 signers at different stages of their learning. The methods used for data collection were the same for each corpus and departed from the corpus linguistic methods used to build earlier corpora (cf. Mesch & Wallin 2015). The rationale for stimuli was primarily the same for each corpus and was based on: 1) interviews, 2) picture descriptions, and 3) retellings.

So far, data have been collected from 18 SSL, 12 ISL, and 19 ASL learners (1st- and 2nd-year students). The first investigations of the corpora are in progress. For example, for SSL, the first analysis (approx. 9 hours of data) has focused on description of the learners’ interlanguage (Selinker 1972), i.e. the learners’ use of grammar and vocabulary, along with identifying common L2 errors, especially regarding the use of nonmanuals.

The use of corpora of different SLs for the purposes of research have a great potential to allow researchers to compare, e.g., L2 learning milestones cross-linguistically in order to make the results more reliable. Moreover, learner corpora can provide educational advantages for teaching SLs as L2s (cf. Granger 2003). Our presentation will provide examples from our corpora, including some research outcomes.
The Key Role of Eye Gaze in Deaf Education

L'Huillier & Sallandre

French Sign Language (LSF) has been recognised as a teaching language in the law of 11 February 2005, and yet this same law still prioritises the integration of individual Deaf children in ordinary environments (Dalle 2005). In fact, nowadays, the teaching of LSF to Deaf children prevails over natural acquisition from Deaf peers, which had long characterised the transmission of the language in the period of the historical Deaf schools. But Deaf children may exhibit behavioural issues in this environment. A particular problem is the management of the gaze; this adds to the difficulties of teaching LSF while controlling a classroom, given the essential linguistic functions of the gaze in sign language.

This study concerns this visual "listening" attention, its causes, its evolution and the pedagogical methods to enhance its development (how to take advantage of the teacher/student interaction). Our didactic, transversal and longitudinal experiment was carried out with preschool children aged 4-6 (2 children from Deaf families and 3 from hearing families), using LSF resources as formalized by Cuxac's (2000) Semiological model: pointings and other SL-specific structures which allow saying while showing. Our hypothesis was that reinforced use of these specific linguistic resources by the teacher would stimulate the child's attentiveness and interaction with the (Deaf) teacher, while also serving as a cultural vector (Zarate 1986).

Our observations confirm this hypothesis, showing the development of interaction and evidence of pleasure reestablished in the children's management of their gaze. These findings open important didactic perspectives for the teaching of LSF and fruitful lines of research on the cognitive ergonomics of Deaf children learning their language.

References


Acquisition of personal pronouns in HKSL by an HKSL-Cantonese bilingual deaf child: A Case Study

Li & Tang

1. Research Question
The present study is concerned with how early exposure to sign language helps deaf children develop their spoken language(s).

2. Empirical method
We address the issue by investigating the personal pronoun acquisition of a third-generation congenitally deaf child—WT, who acquires HKSL and oral Cantonese, the latter language with support from cochlear implantation since 23 months of age. Longitudinal, bimodal bilingual data have been collected since WT was ten months of age. The child’s spontaneous utterances of both languages were recorded, transcribed and analyzed, covering age 10-36 months.

3. Results
When determining the linguistic status of the communicative signals produced by the child, we adopted the criteria proposed by Volterra & Iverson (1995) who stress combinatory use of the signal with other symbols of the same modality. The 27 transcripts revealed that WT has well mastered the personal pronoun of HKSL by Age 3, showing a clear distinction between first and non-first person. The acquisition order of the personal pronouns of HKSL is as follows: 1st person > 2nd person > 3rd person, with first emergence at 1;9, 1;11 and 2;9 of age respectively. The acquisition of the Cantonese counterparts followed the same order: 1st > 2nd > 3rd, but with first emergence comparatively later, i.e., 2;1, 2;9 and 2;10 respectively. No reversal errors of pronoun uses were found in the data of both languages, unlike what has been observed in the child grammars of spoken languages.

4. Conclusion
The fact that WT showed rapid mastery of the spoken language’s personal pronouns within one year after receiving cochlea implantation at 1;11 suggests a positive role attributable by early sign language input in the deaf children’s spoken language acquisition. At least, the acquisition of HKSL did not adversely impede WT’s acquisition of personal pronouns in oral Cantonese.

References
Incremental processing of ASL sentences in deaf adults and children

Lieberman, Borovsky & Mayberry

Spoken language processing is dynamic and incremental, as listeners continuously make and revise predictions about the upcoming linguistic signal. During sign language comprehension, signers must visually attend to both the linguistic signal and the surrounding scene. Little is known about whether signers also interpret these overlapping signals incrementally in real-time. We address this question in the current study using a novel adaptation of the visual world paradigm (Tanenhaus et al. 1995).

In Experiment 1, we asked how signers interpret verbs in simple sentences (Altman & Kamide 1999). Participants viewed ASL sentences where the verb either constrained the potential target (e.g. EAT WHAT? COOKIE) or provided no constraining information (e.g. SEE WHAT? COOKIE). Preliminary data from deaf adults and children (ages 4-7) show that both groups were significantly faster to shift gaze to the target picture and spent more time overall looking at the target in the constrained condition. In Experiment 2, we asked whether signers incrementally interpret adjectives and nouns in sentences when there is early referential ambiguity in the visual scene (Sedivy et al. 1999). Participants were presented with sentences such as “LOOK-FOR BLUE WHAT? BALL” (adjective-first condition) or “LOOK-FOR BALL WHICH? BLUE” (noun-first condition). The degree of ambiguity in the visual scene was manipulated by presenting a visual array that either did (e.g. only one blue item) or did not (e.g. two blue items) allow participants to identify a unique referent before the sentence-final word was presented. Deaf adults and children were found to be proficient at integrating visual and linguistic cues simultaneously, particularly in the noun-first condition.

Together, these studies reveal that incremental semantic processing occurs during real-time sign comprehension. Signers shift gaze between linguistic input and the visual scene to integrate information from both. Furthermore, these skills appear to be partially developed in young children provided they are exposed to sign language from a young age.

References


MLU and Sign Language Development

Lillo-Martin, Berk, Hopewell-Albert, & Quadros

Since Brown (1973), Mean Length of Utterance (MLU) has been a commonly used measure of linguistic growth in children acquiring a spoken language. As children’s language develops, their MLU grows, and many assert that MLU is a better indicator of linguistic level than age. However, cross-linguistic comparison based on MLU is particularly difficult for morphologically complex languages, whether MLU is based on words (MLUw) or morphemes (MLUm).

A few sign language researchers have reported analyses of MLU (e.g., Hoffmeister, 1978; Ferjan-Ramírez, Lieberman & Mayberry, 2013). Baker, van den Bogaerde and Woll (2009) mention MLU as a grouping strategy, pointing out that when calculating MLUm there is a need to define ‘morpheme’. However, the necessary explicit criteria for calculating MLU in sign languages and standards of MLU development are yet to be established. The goal of this presentation is to offer several alternative methods to the research community for commentary and the eventual adoption of a systematic, uniform, comparable set of standards.

It is very important for the field to establish a standard method of calculating MLU in signs to enable comparisons across studies within and potentially across languages. There are numerous questions regarding how to count sign morphemes. In our analyses of children acquiring sign languages we have developed working answers to these questions to establish a consistent coding routine. We include the referential use of spatial loci, repetition for aspect or emphasis, pointing signs used in context, and verb like emblems in the morpheme count. Non-emblem gestures, non-manual markers, pointing signs outside a sentential context, and repetitions with no change in meaning are not counted. Using this system, we have found increases in MLUm across 2- to 3-yearold signers, but rise in MLU is much less steep than commonly reported for spoken languages, an issue we address in ongoing work.

References
The emergence of three-dimensional signing and mental rotation skill in deaf Nicaraguans

Martin, Flaherty, Senghas, & Pyers

In previous work, we found that early acquisition of Nicaraguan Sign Language (NSL) facilitates mental rotation abilities, consistent with findings on ASL(1). What aspects of sign language influence spatial cognition, and how, in turn, are the structures of sign languages shaped by cognition? One candidate aspect is the use of axes of movement with spatial verbs. Most (possibly all) sign languages use a front-to-back axis (z-axis), and many also use a left-to-right axis (x-axis); with the z-axis likely historically preceding the x-axis(2). Is x-axis use emerging in NSL, and if so, is it enhancing (or a consequence of) mental rotation ability in NSL signers?

We measured mental rotation skill and the use of the x-axis within verbs by 20 Deaf Nicaraguan signers (age 20-45) exposed to NSL by age 6. To capture changes in NSL, emerging over the past 40 years, we considered the year participants entered the community (YoE), 1974-1998.

Participants watched brief videos of interactions between two characters and described what they saw. The frequency of use of the x-axis was coded in their descriptions. In the mental rotation task, participants viewed a real object and indicated its match from two images (a rotated match and a mirror image) (Fig. 1.)

A regression on the use of the X-axis (as opposed to any other axis) by YoE and Mental Rotation accuracy, with Subject as a random factor), yielded marginally significant effects for both YoE (.079) and Mental Rotation (.099). Thus, the use of the x-axis may be emerging over time, particularly among those with better mental rotation skill. We will discuss the direction of this effect; for example, it might be that the emergence of other spatial language in NSL enhanced mental rotation skill, enabling younger signers to introduce multiple axes of movement.

References


Fig. 1: Stimuli used in the mental rotation task. Participants touched the option on a touch screen that matched the target object held in front of the screen.
Interpretation of bound pronouns by hearing learners of Japanese Sign Language: testing the “anti-OPC” effect

Matsuoka & Lillo-Martin

The Overt Pronoun Constraint (OPC) states that an overt pronoun can be bound by a referential NP, but not by a quantifier. Its effect can be observed in Japanese (Hoji 1991), but not in English. Kanno (1997) showed that English-speaking learners of Japanese follow OPC. In contrast, Nakayama and colleagues (Pimentel and Nayayama 2012, Kahraman and Nakayama 2013), using Truth-Value Judgment Task (TVJT), claimed that the opposite constraint (i.e. all pronouns can have the bound variable reading) is at work, at least among beginners. Null and overt pronouns in Japanese and Japanese Sign Language (JSL, nihon shuwa), show the same syntactic property. Hence, this pair is suitable to test the modality-specificity of the anti-OPC observed in Kahraman and Nakayama’s study.

(1)  a. *darei–gakanojoi–gahon-o kat-ta to it-ta no? (Japanese)
who-NOM she-NOM book-ACCbuy-PAST COMP say-PAST Q
“Who said she bought a/the book?”

b. *[PT3iBOOK BUY] SAY WHOiPT3i(JSL)

“Who said she bought a/the book?”

We are going to conduct a TVJT, with different levels of Japanese-speaking learners of JSL to observe if the “anti-OPC” applies to a L1-L2 pair indifferent modalities.

Method
L2 learners of JSL (beginners / intermediates) watch stories presented in PowerPoint slide show, explained in JSL. After each story, a recording of two native signers appears, in which one asks question about the story and the other answers. The learners decide if the answer is right or wrong and indicate by filling in a questionnaire.

Prediction
If the learners at the beginning level accept the bound variable reading for the overt pronoun, it indicates the anti-OPC effect. Otherwise, we expect the learners’ responses would either follow Japanese grammar (L1 transfer), or follow OPC.

References


Personal reference in signed argumentative texts produced by deaf and hearing students of Spanish Sign Language

Moiua, Garcia-Azkoaga & Ozaeta

The aim of this study was to identify and analyse the difficulties encountered by hearing sign language students when using personal references in signed language. We analysed a corpus made up of 6 oral texts, 6 signed texts by hearing students and another 6 by deaf people. The texts, which were produced in response to the same instruction, aimed to encourage young people to study Spanish Sign Language (LSE).

Some studies suggest a binary pronominal system (Meier, 1990), while others argue that non-manual components, such eye gaze intervene in some pronouns, enabling the different referents to be distinguished (Meurant, 2005). For their part, Bel et al. (2014) identify redundancy as one of the characteristics of the signed narrations texts produced by hearing learners.

We believe one of the difficulties for hearing students lies precisely in the use of personal reference. We approached the study of signed language from its textual and discursive dimension, in accordance with the textual architecture analysis model.

The analysis revealed that the signed texts produced by hearing students used more pronominal elements (that were not always necessary) than those produced by deaf people. Similarly, we also observed the use of pronouns alongside directional verbs (I INDEX YOU INDEX I ENCOURAGE YOU). When realising the pronouns, we observed that hearing students did not use eye gaze in the same way as deaf people did. We believe that these findings are important to overcoming models that propose a manual form for each pronoun, moving instead towards a teaching method that takes into account the real use of LSE.

References


Markers of (dis)fluency across signers’ profiles in French Belgian Sign Language

Notarrigo & Meurant

This study investigates the commonly held belief that native signers are more fluent than non-native signers. The aim is to describe the use of (dis)fluency markers ("fluencemes") in the non-pathological signing production of 4 native (N), 4 near-native (NN) and 4 late (L) signers of French Belgian Sign Language (LSFB) aged around 34. The corpus consists of semi-interactive samples (4min/signer, around 6.700 annotations of the hands and 3.500 annotations of gaze) from unprepared speech between two deaf participants on topics related to LSFB use. The criteria used to classify signers into the three a priori groups are the parents’ status (deaf/hearing), the age of LSFB acquisition and the type of education.

(Dis)fluency is considered as the result of the combination of many independent markers which may contribute either positively or negatively to the fluency of a discourse, depending on their frequency and their context of occurrence (Götz 2013). We identified as potential fluencemes: (1) the speed, (2) the use of both hands, (3) palm-ups, (4) truncations, (5) stops of the hands between signs, and (6) the gaze direction. All these fluencemes were coded in ELAN following a specific guideline (Crible et al. 2015). Moreover, palm-ups and stops have also been annotated for the co-occurring nonmanuals (Meurent & Notarrigo 2014). The data was statistically analysed (frequency and ratio measures, ANOVA and Student T test).

Results suggest that the profiles defined on extra-linguistic criteria do not match properly with the (dis)fluency profiles of the signers’ production. The three groups are similar for the use of some fluencemes (floating gaze, stops expressing word search). Nevertheless, we noticed, between N and NN/L, significant differences regarding: the speed, the use of one- or two-handed signs, gaze direction shifts; and slight tendencies regarding: the use of nonmanuals, truncations and palm-ups. N and L may have different strategies to manage their discourse. NN are at the intersection of the two other groups.

References


Language use and cognitive control in bimodal bilinguals

Ormel, Giezen, van Diggelen, Klomp, Buts, Ng, & van Zuilen

For bilinguals of two spoken languages, experience with the use of multiple languages has been shown to result in specific cognitive advantages. This is not only true for adults but also for children (Bialystok, 2010). For bilinguals of a signed language and a spoken and/or written language, i.e. deaf and hearing bimodal bilinguals, research into possible cognitive advantages has only just started. Emmorey et al. (2008) found that hearing bimodal bilingual adults did not show the same advantage as unimodal speech bilinguals on an inhibitory control task. This raises the question whether the unique nature of bimodal bilingual language processing might affect different aspects of cognitive control than for spoken language bilinguals.

Although bimodal bilinguals have not shown advantages in inhibition thus far, they may do in aspects of cognitive control that more directly relate to the way they coordinate their different languages. The aim of the present study was therefore to investigate the ability to monitor and coordinate information within and/or across modalities in both deaf and hearing bimodal bilingual children as well as adults.

For the purpose of this study, we have developed six non-linguistic tasks that require monitoring and coordination of auditory, motoric, and/or visual information, including a cross-modal variant of the flanker task used by Emmorey et al. (2008), a cross-modal perceptive integration task, and an adaptation of Bialystok (2011)’s dual modal classification task.

Our first results confirm the absence of advantages in inhibitory control for bimodal bilingual adults, but, importantly, suggest that bimodal bilinguals’ unique experience with processing linguistic information in different modalities may selectively enhance their domain-general abilities to integrate information across modalities.

References


Type of iconicity matters: bias for action-based signs in sign language acquisition

Ortega, Sümer & Özyürek

Early studies investigating sign language acquisition claim that signs whose structures are motivated by the form of their referent (iconic) are not favoured in language development. However, recent work has shown that the first signs in deaf children’s lexicon are iconic. These contradicting findings may relate to iconicity being operationalised in a broad sense when in fact a more granular differentiation between different types of iconic depictions is needed. In addition, most studies investigating the role of iconicity in sign acquisition are based on parental reports or naturalistic child-caregiver interactions which may generate coding inconsistencies. In this paper we use a stringent experimental paradigm to ask whether different types of iconicity modulate learning sign-referent links.

Two groups of deaf children (preschool children, mean age: 5;07; and school-age children, mean age: 9;01), their deaf parents (parents preschool children, n = 9; parents school-age children, n = 9) and a different group of deaf adults (n = 10) took part in a picture description task. The five experimental items had two possible lexical variants: one depicting actions associated with a referent (action signs), and one representing its perceptual features (perceptual signs).

Results indicate that children signing to adults significantly favoured action signs. In contrast, adults signing to another adult produced mostly perceptual variants. Parents interacting with children used action and perceptual variants in equal proportion. We interpret these results as children preferring action signs because they can be easily mapped onto representations in their motor schema. We also propose that when an action- and a perceptual-based variant are possible for the same referent, parents favour action signs in child-directed signing to facilitate language development.
Teaching Sign Language to Parents of Deaf Children

Oyserman & de Geus

Compared to the body of research about sign language interpreter training, there have been few studies about L2 acquisition and teaching for parents of Deaf children. This group of learners has previously received only rudimentary support for L2 learning of sign language.

This presentation shares findings regarding the development of CEFR-based parent sign language curricula and the field-testing of parent classes. Semi-structured interviews and written surveys were conducted with eight Dutch parents enrolled in the classes. These parents all have CI-children between 7 and 13 years old and do use sign language in daily communication. Interview data are presented and analysed in terms of parents’ L2 learning experiences with the CEFR-based curriculum that is currently under development and investigation. These findings indicate parents’ progress in terms of communication and interaction skills and parents’ inventiveness to produce signs and sentences in depth. The average length of sentences transferred from 3-sign sentences to sentences with more signs included. Variation in lexicon usage enlarged. Parents themselves reported that their frustrations did decline and knowledge of linguistic tools at home was expanded. As L2 learners, they reported more self-esteem and experienced pleasant family interchanges. These findings indicate that it is important to provide advanced sign language curricula for parents of Deaf children.

References

Bimodal Bilingual Word Order

Palmer

This study examines the word orders produced by heritage learners of American Sign Language (ASL) from video-recorded naturalistic sessions. These children are born to deaf signing parents but have auditory access to English. Commonly, these children are only exposed to ASL in the home and the dominant language, English, both in school and in the community. Comparison of these bimodal bilinguals to native signing deaf children reveals qualitative similarities in the acquisition of word order.

However, there are several quantitative differences between these two groups. I will point out striking parallels in the ASL of my subjects and those papers reported by previous research on unimodal bilingual. The literature to date posits that several factors contribute to the over-reliance on canonical word order. While non-canonical word orders appear in nearly every sign session analyzed, these bimodal bilingual children produce far fewer instances than native signing deaf children and this pattern persists from the earliest two sign combinations through early childhood. These patterns are both similar and dissimilar to reports on late-exposed deaf children. As suggested by Hulk & Müller (2000), SVO is consistently reinforced as an option because it is the basic word order for both ASL and English. Also, since word order is much more restricted in English the children favor it as a more economic option (Mykhaylyk 2009).

Lastly, noncanonical word orders in ASL are licensed by morphological features making them vulnerable to input effects (Unsworth 2014). By examining the various factors that influence these word orders this study illuminates which characteristics of bilingual language development are resilient and which are fragile. Furthermore, the data analyzed suggests that so-called visual pressures (Napoli & Sutton-Spence 2014) are not robust enough to guide the subjects’ noncanonical word order productions.

References


Analysis of phonological and morphological movement errors of deaf children in LSQ tasks

Parisot, Luna & Saunders

Analysis of phonological and morphological movement errors of deaf primary school students in perception and production tasks in Quebec Sign Language. In Sign Language, child’s motor skills are considered to have an influence on the mastery of producing phonological units according to his age (Siedlecki & Bonvillian, 1993). A psycholinguistics study on perception in ASL (Emmorey & Corina, 1990) identifies that the PM is essential for the identification of a sign. Further research has shown the complexity of PM (Mann, Marshall, Mason & Morgan, 2014). In this presentation, we analyze the role of movement with the errors in perception and production.

We propose a description of the deaf children’s (N=38) ability to perceive (identify, categorize and analyse) and to produce (modify, reconstitute, create) different contrast of a phonological element, which expresses sequentiality, namely the PM. We present the results of a statistical analysis (Student-t, nonparametric) of the production data collected from three age groups of participants (3 to 5;11, 6 to 9, 9;5 to 12;11) with some of them having retested for 2 (n=13) or 3 (n=7) successive years. The production tasks are analyzed with the following questions: 1) Do all groups of age have an equivalent mastery of the different types of tasks? 2) Do they have an equivalent mastery of different categories of phonological elements (hand shape, location, PM)? 3) Do the retested participants shows better scores for all the task and all the phonological component? 4) Is PM more involved in errors than other elements? 5) What is the distribution of PM vs morphological movement involved in error?

Although results confirm that our participants are sensitive to these categories, the PM appears more complex to master when compared to the other elements and the type of task seems to have an impact on the success rate. Comparing these results with previous studies conducted on teenagers and adults, we can say that PM has a negative impact on success rate for all group of age for perception and production task.
Word learning in non-ostensive contexts: The role of iconicity in child directed signing

Perniss, Lu, Morgan & Vigliocco

Language learning, which requires linking linguistic form to referents, has been studied primarily in ostensive learning contexts. Not surprisingly, then, established word-learning strategies, like pointing and cross-situational learning, rely on the co-occurrence of referent and label. However, non-ostensive contexts (where label and referent are not co-present) are estimated to represent a majority of learning episodes (Tomasello 2008), and it is thus crucial to understand word-learning strategies in these contexts.

Here, we ask whether sign iconicity – traditionally assumed not to promote vocabulary acquisition (Orlansky & Bonvillian 1994) – may play an important role in non-ostensive learning. We approach this question from the perspective of the input to the child. Motherese-type modifications may highlight the resemblance between linguistic form and referent (e.g. saying “loooong”), and in spoken languages high in lexical iconicity (and thus comparable in this respect to sign languages), caregivers have been found to make increased use of iconicity in child-directed speech (Fernald & Morikawa 1993).

We hypothesized that caregivers using British Sign Language (BSL) may highlight the iconic properties of signs in child-directed signing, and that this may be the case especially when referents are not present. By highlighting the resemblance between form and referent, iconicity may help the child to identify a referent from language when the referent cannot be directly attended to. In a within-subjects design, deaf caregivers (N=10) were given four novel toy sets and asked to imagine playing with/talking about each set with their child in two conditions (toys present; toys absent). We found an increased use of motherese-type modifications for iconic vs. non-iconic signs, and crucially, we found more such modification when toys were absent than when toys were present. Findings suggest that iconicity may be a powerful tool in word learning and may be particularly important in non-ostensive contexts when referents being talked about are not present in the immediate environment.

References


Psychophysiological indices of lexical access in hearing learners of ASL

Peterson, Tanner & Dye

When we see an object, a range of linguistic information about that object becomes available to us. Amongst other things, we will be aware of its category (semantic information) and how to pronounce its linguistic label (phonological information). Research into second language (L2) learning has often been interested in how quickly learners access these types of information, and in what order. For example, learners of Spanish need to be able to access syntactic information such as the gender of an object. While native speakers may access this information rapidly and at the same time as phonological information, learners may be using long-term memory retrieval processes that result in slow access to syntactic information. Here we use event-related potentials (ERPs) derived from the electroencephalogram (EEG) of hearing L2 learners of American Sign Language (ASL) while they make decisions about the semantics or phonology of visual objects. The lateralized readiness potential (LRP) recorded from neurons in premotor and motor cortex is used to determine the time course of access to semantics and phonology. We predict that access to phonology will be slow and follow semantics in hearing L2 learners, as opposed to rapid access to phonology in native ASL signers.
On the orchestration of linguistic devices for narrative purposes in the acquisition of DGS

Plaza-Pust

Sign language acquisition studies (cf. Bellugi et al. 1990, Lillo-Martin 1999, Morgan 2000, 2006, Müller de Quadros 1997, Pizzuto 2002, Slobin et al. 2003) have shown that morphosyntactic properties of the target language are attained progressively, with some properties not being mastered until well into school years. The protracted development of discursive skills reflects the complexity of the task learners of sign languages are confronted with as several grammatical phenomena they acquire are linked to the discourse level via the syntax-discourse interface. While important insights have been obtained into the acquisition of ASL, BSL, LIS, Libras and NGT, the development of DGS remains largely unexplored.

Based on a collection of signed narratives covering the first two years of a broader longitudinal investigation, the study explores bilingual deaf learners' acquisition of DGS. The data collected were subjected to various qualitative and quantitative analyses on the basis of a descriptive framework of the main grammatical properties of DGS, and a working proposal about the main milestones in the development of DGS.

With a focus on properties that concern the syntax-discourse interface, the discussion of the evidence obtained centres on the learners' orchestration of linguistic devices for narrative purposes. The participants who were of a rather advanced age at the onset of the study (ages 8-10 years) were found to have full competence of the target syntactic structure. Grammatical processes such as verb inflection, the signalling and marking of referential shift, subordination and question formation were found to be operative. While all participants had a command of the target structure, the analyses of the data revealed that they differed regarding their command of discourse constraints on the use of linguistic devices, including referential loci, reference forms, and spatial relations. While some learners use linguistic devices at a local, sentential level, other learners pay attention to a consistent use of linguistic devices for the purpose of creating cohesion and coherence.
Manifestations of SLI in LSF: focus on predicative structures

Puissant-Schontz & Blondel

Studies of atypical signed language development in French Sign Language (LSF) and in many other sign languages are scarce (Quinto-Pozos, 2011), except in the UK. British studies showed that a deaf native signer in BSL had a significant delay in both production and reception, exhibiting restricted BSL grammar and reduced sentences (Morgan et al., 2007).

Specific Language Impairment (SLI) in both SL and vocal language is characterized by heterogeneous language skills, but in SL, it is expressed differently depending on the visual-gestural modality. Morphosyntactic disorders concern the semantico-syntactic space (Quinto-Pozos, 2011), agreement morphology and the classifier system (Morgan et al., 2007).

To identify SLI in LSF, we do not have a reference tool to evaluate LSF due to i) the paucity of linguistic descriptions of LSF, especially in terms of stages of development and acquisition in children and ii) failed attempts to adapt tests from other SL (no practical standardized tests, Courtin & al., 2010). We therefore created a pilot tool to assess predicate structures.

We present the results of the reception and production tasks, focusing on predicative structures, for 4 deaf native signers in LSF (4 to 9 y.o). We observed different patterns of language development including one pattern with delayed language acquisition: reduced used of predicates, problems with reference (goal and target) and with temporal aspect and negation.

We develop and present a new typology of predicative structures. We focus on indices to access the distinctive meaning of these structures, possibly used in simultaneous or sequential combination: handshape, manual orientation, manual pointing, placement, goal and target, manual and facial manner. We propose some hypotheses about the impact of the number of indices in the utterances and their hierarchy in the argument structure.

References


The relationship between spatial cognition and the acquisition of spatial language in ASL

Pyers, Magid, Lu & Emmorey

In ASL, the placement of classifier handshapes in relation to each other can iconically convey spatial relations without the need for lexical prepositions. This iconic representation of spatial relations, however, does not necessarily make this system easier for signing children to acquire; 5-year-olds show weak production and comprehension of spatial classifier constructions, whereas English-speaking 3-year-olds productively use prepositions (Morgan et al. 2008, Choi et al. 1999). We hypothesized that the acquisition of classifier constructions, but not of prepositions, depends, in part, on the development of spatial mapping abilities, which children do not master until age five (Loewenstein & Gentner 2005).

11 deaf children (5 native; Mage=5.3y, range 3.9-6.6y) enrolled in an ASL-English preschool completed spatial mapping3 and spatial language measures (comprehension: Fig. 1; production: Fig. 2). Analyses were conducted with proportions. Children understood spatial classifiers (M=.82, SD=.24) and prepositions (M=.81, SD=.27) equally well (z=-.25, p=.79), but their production scores were lower, (M=.66, SD=.11). Three children produced the correct spatial language for all trials. Age did not correlate with production of either type of spatial language (ps>.05). As hypothesized, spatial mapping abilities positively correlated with productive use of spatial classifier constructions (rs=.65, p=.03) but not spatial prepositions (rs=.07, p=.85).

Development of the use of spatial classifiers is related to spatial mapping abilities because the production of spatial classifiers is, itself, a spatial mapping task requiring the understanding that the relative position of the hands map onto the relative position of objects. The data indicate that that spatial mapping ability precedes mastery of the spatial classifier system: no children mastered classifiers before mastering spatial mapping. Our claim does not necessarily counter other proposals that spatial language supports spatial mapping (Loewenstein & Gentner 2005). Most children in our sample readily produced prepositions, thus we suggest that prepositions may support spatial mapping which in turn supports the acquisition of classifiers, although future research is needed to confirm this hypothesis.

References


[Appendix on next page]
Figure 1. The child was presented with a set of four pictures (on top), and the experimenter signed a spatial sentence using a preposition (bottom left; 15 trials) or a classifier construction (bottom right; 15 trials), and the child had to identify the picture that matched the experimenter’s utterance.

Figure 2. The child was given a set of four pictures (on the right), and was asked to describe one of the pictures (highlighted in red) to the experimenter so that the experimenter could find the same picture in her array (on the left; 12 trials).
Enhancing the awareness of importance of early language input in Deaf children

Rathman & Napoli

Problem
Children acquire language without much effort as long as they are engaged with an accessible language. Today, more than 80% of children born deaf in the developed world receive cochlear implants (CIs) that allow some of them access to sound in their early years, which enables them to develop speech.

Because of brain plasticity changes during early childhood, children who have not acquired a first language in the early years might miss this critical period for exposure to a natural language; their subsequent development of the cognitive activities that rely on a solid first language might be underdeveloped, such as literacy, memory organization, and number manipulation. In addition, the success rate with CIs is variable.

In some countries the medical profession steers families away from sign languages if the child gets a CI, claiming that signing interferes with speech development and impedes academic achievement. Research suggests signing does not interfere with speech development and is, in fact, an aid to academic achievement.

Proposal and Discussion
We introduce and discuss a number of language intervention approaches and their effectiveness: (i) role of language specialists in a CI-team, (ii) awareness training in families with children with CI, and (ii) training of medical professionals at medical schools.

Ours is an advocacy team. We write articles addressing medical professionals, urging them to recommend early exposure to a sign language. We have written one article addressing religious leaders, urging them to involve the entire religious community in helping raise a deaf child within the community. We have written one article arguing for the legal right to language within the United States, which has bearing on any country.

We will present the various ways we have argued to protect deaf children’s language rights and our plans for future articles, addressing medical education, parents, and teachers.
Codas as Heritage Signers

Reynolds

Compton (2014) expands heritage languages (HL) to include sign languages, proposing "nearly all children with Deaf parents in the U.S. acquire ASL [American Sign Language] as a heritage language." This definition includes both hearing Coda and Deaf children as heritage signers (HSi), but overlooks the wide variation in proficiency outcomes observed for Coda HSi, in contrast to Deaf HSi. I argue for a distinction between these two groups, based on an in-depth comparison with previously reported patterns of language mixing by heritage speakers (HS). I will center my discussion on three similarities between Coda HSi and HS from elicited narratives using quasi-experimental design: variability in proficiency, strategies for addressing lexical gaps and temporal cohesion devices. HS variable proficiency in their HL is widely recognized (Benamamoun et al., 2010), and has been noted for adult Coda HSi (Supalla et al., 2014). Research indicates that Coda children’s signed narratives display structural patterns distinct from those observed for Deaf children (Morgan, 2000).

In my data, Coda HSi narratives displayed a strategy for addressing lexical gaps that parallel those employed by HS such as code-switching. In my narrative studies, code-blending is a frequent strategy to fill in lexical gaps including novel lexical creations in a code-blend, a phenomenon not found for Deaf HSi children or in the HS literature. Finally, HS narratives display non-target discourse properties (Polinsky, 2008). I detail Coda children’s use of temporal cohesion markers, not found in the narratives of Deaf HSi children. The frequent appearance of overt markers is reminiscent of English and may also take form in novel creations in code-blends.

The results point to Coda’s developmental patterns of a signed HL that is distinct from Deaf HSi yet more similar to HS. Viewing Codas as HSi validates their language and cultural patrimony, to ensure ongoing linguistic and cultural ties to their Deaf families.

References


The use of code-blends in a narrative task by deaf and hearing bimodal bilingual children

Rinaldi, Onofrio & Caselli

In Italy, all deaf children learn and use spoken and written Italian and most of them also acquire and use Italian Sign Language (LIS) in their everyday life becoming bimodal bilinguals. However, proficiency in each language may show great individual variability and spoken Italian development is often significantly delayed. Research indicate that bimodal bilingual children frequently use “code-blends”, producing signs and spoken words at the same time (Baker & van der Bogaerde, 2008; Emmorey et al., 2012). In the present study we aimed to analyze the use of code-blends produced by deaf and hearing bimodal bilingual children during a narrative task. Twenty signing children, 10 deaf and 10 hearing, attending the same school (age range 8-11 years) were individually asked to generate a narrative based on events represented in six pictures. Narrative were analyzed for global structures, information content, local level grammatical devices and the use of code blends. Results show a significant difference in spoken abilities between hearing and deaf children. In the group of deaf children, a relationship between the frequency in the use of code blends and age of acquisition, amount of input and proficiency in both LIS and spoken Italian were also observed. According with other authors, we suggest that the use of Sign Language may play an important role in allowing the child to talk about ideas and concepts that he is not yet able to express clearly in spoken language Italian.

References

Longitudinal L3 Acquisition: Changes and Persistencies in Prior Language Influence: A Descriptive Study

Rosen

When constructing a third language (L3) the general consensus among researchers is that learners rely on different resources afforded by their L1 (first language), L2 (second language) and/or their current knowledge of the L3. Past studies have identified a number of cross-linguistic factors that may influence the learner’s choice of the source of transfer. They were typological similarities and differences between prior L1 and L2 languages and target L3 language, proficiency in prior and target languages, length and environment of residence, and status factor of prior languages. However, these studies were mostly cross-sectional in design, with limited timeframe. As a result, temporal change in the use of the prior linguistic resources was poorly documented in these studies. Using a case study descriptive approach, and employing an emergence and 90 per cent linguistic principle application criteria to mark acquisition, the present study examines one learner’s L3 production of ASL, specifically, that of motion verbs, goal proposition phrases and the word orders of its argument structures, over a period of one academic year. The learner is a native speaker of L1 Japanese and is fluent in L2 English. It is found that the learner constantly as well as differentially drew on his L1, L2, and his current knowledge of the L3 for different linguistic constructions as they were influenced by changing constellations of factors of typological similarities, length and environment of residence and the status of the L2 language over time.
Phonological processing in deaf readers

Rowley, Vigliocco & Vinson

Generally, deaf people have lower reading skills than their hearing peers and various reasons have been argued to underlie this difference, such as delayed language and/or lack of access to phonological information (Chamberlain & Mayberry, 2008). As deaf people do not have the same access to phonology as hearing readers, this is thought to contribute to poor literacy. Studies of word recognition in hearing individuals have found that hearing readers are influenced by phonological information (Rastle & Brysbaert, 2006). In lexical decision tasks, pseudohomophones (nonwords that sound like real words e.g., ‘brane’) are rejected more slowly compared to nonwords that do not sound like real words (e.g., scoud). This is known as the ‘pseudohomophone effect’. To investigate phonological processing in deaf readers, we carried out a lexical decision task on a group of 20 skilled deaf readers who are British Sign Language (BSL) users and 19 hearing readers matched on age, gender and education level. We found no difference the performance of both groups and, crucially we found a pseudohomophone effect in both groups. This shows evidence of phonological processing in deaf adults thus, poor literacy levels in the deaf population may not only stem from a lack of access to phonological information.
Acquisition of perspectives and transfers in French Sign Language

Sallandre & l’Huillier

Research has shown that the acquisition of classifier constructions (transfers in our approach) is not fully mastered until age 8-9 (Slobin et al. 2003; Tang, Sze & Lam 2007). This late development can be accounted for by the complexity of the structures on both the articulatory level (mastering simultaneous manual and non-manual parameters) and the cognitive level (e.g. handling different perspectives of the same event, decentering). Slobin et al. (2003) indicate that their five-year-old subjects had difficulties changing perspectives throughout their narrative (alternating narrator/external perspective and protagonist/internal perspective). In contrast, their twelve-year-old subjects have a better mastery of non-manual parameters (body posture, facial expression, gaze) enabling them to alternate internal and external perspectives, and even to rapidly change internal perspectives from one protagonist to another.

Only few studies have addressed these questions in LSF (French Sign Language). Recently, we created the Creagest Corpus, a large LSF corpus with various metadata, annotated with ELAN. Specifically, we analyzed narrative productions of Deaf signers who have LSF as a first language (n=18, six children from hearing families, six from Deaf families, two children per group aged 5, 8 and 12 respectively, and six adults).

Our initial results in LSF seem to confirm the results found elsewhere in several sign languages. Specifically, our data show that children aged 5 produce only the internal perspective, using personal transfers (constructed actions in Cormier et al. 2013) whereas children aged 8 and 12 produce both internal and external perspectives (through situational transfers). The 8-year-olds produce two transfers sequentially, while 12-year-olds produce them simultaneously, as adults do (with double transfers).

Interestingly, our data show that for the expression of actions and entities, transfers are slightly more frequent in children from hearing families, while lexical signs are slightly more frequent in children of Deaf families.

References


Motion expression in the acquisition of French Sign Language and spoken French

Schoder & Sallandre

Visual-spatial languages allow us to better understand universal and language-specific determinants on our spatial representations and their development. This study examines motion expression in French Sign Language (LSF) with particular attention to the role of iconicity in defining properties of sign languages and its implications for acquisition within an approach that is crosslinguistic (Slobin 2004) and semiological (Cuxac 1999).

We compare productions in LSF by Deaf children of Deaf parents, aged 4-5 and 8-9, and Deaf adults (6 per age, coding in ELAN) and in French by same-aged hearing speakers (24 per age, coding in CLAN). All participants described 26 video clips showing agents carrying out motion in varied manners (e.g. walking, running) along three paths (up, down, across). We examined how many spatial components were expressed (density), and for each with what degree of informative detail (specificity) and by means of what structures.

Results show that signers of all ages express both Path and Manner more frequently than French speakers (who focus on Path) and provide informative details about each component, resulting in responses of high density and specificity. They encode information either within one structure or in successive constructions describing the same event from internal vs. external perspectives. Event types also impact signers’ response density which increases with age more with crossing than with vertical motion and invite them to use different iconic structures (role shifts with crossing events, classifier constructions with vertical motion) which focus on different components (Manner or Path, respectively). Although little increase in density is observed with age in LSF (unlike French), an increase in specificity indicates gradually more precise descriptions.

In conclusion, despite developmental progressions in both languages, responses in LSF and in French differ at all ages, suggesting that modality impacts language acquisition, inviting further research to compare motion descriptions with coverbal gestures (Özyürek et al. 2014).

References


Building up L2 corpora in different sign languages – ASL, ISL, SSL

Schonstrom, Dye, Leeson & Mesch

In contrast to years of extensive teaching in the second language (L2) programs of signed languages, there is a lack in the research of signed language as an L2, specifically with respect to the sign language acquisition (SLA) area. One reason for this might be the absence of proper and transparent data. In addition, most of the SL as L2 research published so far, have been based on American Sign Language (ASL). There is therefore a desirable need to further expand research in SLA as L2. As a step to overcome this, we established a collaboration in 2013 in which we aimed to build up three parallel L2 corpora based on three different sign languages: ASL, Irish Sign Language (ISL) and Swedish Sign Language (SSL). The aim was to collect data from adult hearing L2 signers of the respective sign languages, to build a database for future investigations of the L2 SLA.

The method used for data collection for the three corpora was the same. The data collection had a longitudinal approach, collecting data from a group of adult L2 beginner signers during different times of their learning. We use stimuli with some differences according to culture and aim of study. The rationale for stimuli was however the same for all corpora and based on:
1) Interviews, 2) Picture description and 3) Retellings.

So far, ASL, ISL and SSL have collected data from 19, 12 and 18 learners respectively. Data collection is still ongoing and the first research outcomes from the corpora are in progress. As example, for SSL, the first analysis work has focused on nonmanuals and annotation methods from a L2 perspective. In our paper we will present our corpora and our methods along with summaries of our research outcomes in greater detail.
Polish Sign Language and executive function in deaf bilingual children in late childhood

Schromova, Kotowicz, Woll, Herman, Kielar-Turska & Lacheta

In contemporary studies, bilingual children who use two spoken languages show an advantage (Bialystok, Craik, Green, Gollan, 2009), compared to monolingual children, in tasks requiring executive function, but bilingualism and its correlation with higher cognitive functions of deaf children still need to be explored (Hauser, Lukomski, Hillman, 2008). This poster presents a study of linguistic and cognitive functioning of deaf bilingual children in late childhood to determine the relationship between executive function, reading skills and Polish Sign Language skills, as those factors are crucial in educational success. Four groups of deaf children were compared: deaf children of Deaf parents without cochlear implant (CI) (N=17), deaf children of hearing parents: with CI from bilingual education (N=6), with CI from non-bilingual education (N=5) and without CI from non-bilingual education (N=5). Kruskal-Wallis test revealed no significant group difference in executive function (p> .05), but significant group differences were found in PJM skills (H=16.34, p< .01). For the deaf children of Deaf parents, the Pearson correlation coefficient showed a strong correlation (r= .64, p< .01) between reading skills and PJM raw scores. In other groups there were no significant correlations between executive function, reading skills and PJM scores. The poster presents first steps in research on executive function in deaf children using Polish Sign Language. In the future, we need to enlarge our sample in order to generalize with more probability the research results on executive function in deaf bilingual children.

References

Production stability of aspectual verb morphology in ASL

Stuehm, Loucks, & Dye

American Sign Language (ASL) has a complex verb morphology whereby speakers of the language make subtle changes to the movement path of a verb in order to change its meaning. In this study we focus on two such morphemes: +habitual and +repetitive. The ability of L2 hearing learners of ASL to consistently produce these morphemes was measured using motion-tracking equipment that allowed the capture of the shoulder, elbow and wrist movement in 3-D space. This data was analyzed using the spatio-temporal index in order to obtain a measure of production stability. In line with our previous work, we predicted that production stability would increase with increasing familiarity with the language, but that after three semesters it would still not reach the level observed in native speakers of the language. Given that over 90% of deaf children are born to hearing parents (most of whom do not know ASL), it is important to understand how adult hearing L2 learners achieve (or do not achieve) fluency in the language. This study is one of the first steps in establishing reliable measures that can be used in future studies.
Bilingual-bimodal acquisition of spatial referencing in Cantonese and HKSL narratives

Sze, Tang, Wei & Cheung

This paper investigates the acquisition of spatial referencing in Cantonese and Hong Kong Sign Language (HKSL) narratives by the Deaf/hard of hearing (D/HH) children studying in a sign bilingual co-enrollment programme. Spatial referencing refers to the indication of the relation between FIGURE and GROUND through different predicate types on the syntactic level and an organization of spatial information on the discourse level. Spatial referencing requires the coordination between perception and language, and this skill is not fully mastered until the age of ten by typically developing hearing children acquiring their first language (Hickmann 2002). In Cantonese, spatial information is conveyed through postpositions combined with co-verbs or verbal predicates that incorporate manners and/or deictic references. In HKSL, spatial referencing is done through locus assignment, verb agreement, classifier predicates and role shift. How are these two distinct grammatical systems acquired by D/HH children? To address this question, we examined the narrative data by 15 D/HH children who had years of speech training and up to 3 years of formal sign language exposure. Among them, 5 participated in the same elicitation tasks for three more years. The Cantonese data show that D/HH children, besides their low frequency and accuracy of functional words, lag behind hearing children in acquiring syntactic structures that encode several pieces of locative information. As for HKSL, role shift and agreement verbs with inconsistent spatial inflections can be found only in children with the longest duration of sign language exposure. Classifier predicates over an extended discourse and spatial indexing for referent-tracking purpose remain rare. In the longitudinal study, some children showed no obvious progress in their use of space. Our data point to the hypothesis that spatial referencing is difficult to master in both modalities, and that transfer factors may underlie the delayed development in the use of signing space.

References
Hickmann, Maya. (2002). *Children's Discourse: Person, Space and Time Across Languages*. West Nyack, NY, USA: Cambridge University Press
Hands in motion: Learning to express motion events in a sign and a spoken language

Sümer, Zwitserlood, & Özyürek

The aim of the study is to investigate modality effects in learning a spatial language, and it compares developmental patterns in learning to express different components of a motion event (Path-Manner and Figure-Ground) in Turkish Sign Language (TİD) and Turkish in the same tasks for the first time. Deaf children in two age groups (4-6 years & 7-9 years; N=10 in each age group) acquiring TİD natively and age-matched hearing children acquiring Turkish (N=10 in each age group) described 8 short vignettes where a Figure is changing its location with respect to a Ground/Goal along a Path in a salient Manner.

In expressing "Path-Manner", age comparisons across languages showed that adults in both languages encoded both Path and Manner similarly (p>.05). However, both age groups of deaf children expressed Path and Manner more frequently than their hearing peers, who mainly encoded Path only (p<.05). In encoding Figure and Ground, deaf and hearing adults referred to both of these aspects (p>.05). TİD-acquiring children, however, tended to omit Figure or Ground in their descriptions more frequently than Turkish acquiring children (p<.05). Taking into account the co-speech gestures of the speakers did not change these patterns.

Results confirm previous studies showing that signing children encode both Path and Manner around age 41, earlier than children acquiring a spoken language, who express either Path or Manner – depending on the typology of the language2. Thus, it may be easier to convey both Path and Manner in the manual modality3. However, TİD-acquiring children omitted either Figure or Ground more frequently than Turkish speaking children. This might be related to the difficulty of coordinating to convey information about different entities in different articulators in sign languages. Thus, different aspects of the visual modality influence how different components of motion events are acquired in sign versus spoken languages.

References


Learning to encode viewpoint-dependent spatial relations in a sign language: Does the body matter?

Sümer, Perniss, Zwitserlood, & Özyürek

In sign languages, viewpoint-dependent spatial relations are mainly encoded through classifier predicates where hands represent the objects in the spatial event, and their relative locations are mapped in an analogue way onto the signing space, mostly from “signer-viewpoint” (Emmorey 2002). In Turkish Sign Language (TİD), signers can also use body-anchored lexical signs. This study investigates whether TİD-acquiring children are adult-like in their preference for use of relational lexemes and signing space to locate classifier predicates.

Two age groups (4-6 years & 7-9 years; N=10 in each group) of TİD-acquiring children described pictures showing two different objects placed on lateral (left-right) (N=6) and sagittal (front-behind) axis (N=6). Their descriptions were compared to those elicited from 10 native deaf adult users of TİD.

For lateral axis encodings, adults and children mostly preferred classifier predicates (sometimes together with relational lexemes) and their spatial configuration reflected that of signer-viewpoint. However, for sagittal axis encodings, adults and children differed from each other. Adults mainly used classifier predicates, mostly together with a relational lexeme. The location of classifier predicates in the signing space did not match the position of the entities as seen by the signers, but paralleled the spatial anchoring of the relational lexemes "front-behind" on the signers’ body. Children mainly used classifier predicates, and rarely together with relational lexemes. Moreover, their spatial configuration of classifier predicates was different than adults and always from signer-viewpoint.

TİD-acquiring children achieved adult-patterns in encoding spatial relations between the entities located on the lateral axis earlier than the sagittal one – contrary to speaking children (Johnston 1988). Thus, use of the body and space may modulate the acquisition of viewpoint-dependent spatial relations differently, questioning to what extent general principles of cognitive development guide the development of the linguistic encoding of such relations.

References

Deaf and hearing children growing up in a big bilingual family of hearing parents

Takinnen

Most of the times one deaf child is growing up among the hearing parents and hearing siblings. Even if the hearing members of the family are signing in addition to a spoken language, the deaf member is in the minority in relation to language use at home. This paper presents a bilingual language environment in a big nuclear family with 16 members: two hearing parents, seven hearing and seven deaf children.

The aim was to study, 1) how a small signing community in a big family of hearing parents affects the language and social development of deaf children, and 2) how the hearing children acquire the sign language from their siblings.

The data are gathered using ethnographic interviews and analysed by content analysis. The method is based on a long relationship with the family in their living environment and common get-togethers.

The results show that when the parents had their second child, who was deaf, they did not know anything about deafness or sign language. The family was recommended to start learning sign language and use it with their deaf child. The parents had never learned any other language except their native spoken language, so it was a demanding task for them. The parents still decided to strive to learn to sign in order to help the deaf child to acquire a language and learn to communicate. When the next hearing and deaf children were born the sign language was already used in the family, and it became stronger and stronger along with the new users. Even the youngest hearing children acquired sign language first and then the spoken language.

In conclusion, the family life has been bilingual from the beginning, and the deaf children have not been in the minority in relation to language. They have had a rich signing environment from the beginning and a strong ground to develop a good self-esteem as a deaf sign language person.
Cross-language and cross-modal activation in hearing bimodal bilinguals

Villameriel, Dias, Costello, & Carreiras

This study investigates cross-language activation in the context of bimodal bilingualism. Previous work has shown that when bilinguals process words in a second language (L2), the words of the first language (L1) are activated and may influence the processing. Thus, judging the semantic relation two L2 words may be affected if the corresponding L1 words are very similar in form (Thierry & Wu, 2007). This may be explained by the activation of the L1 forms facilitating or inhibiting lexical access.

In this study, two groups of hearing bimodal bilingual adults for whom spoken Spanish is their dominant language and Spanish Sign Language (lengua de signos española, LSE) is their non-dominant language performed a monolingual semantic decision task with word pairs heard in Spanish. The groups were formed according to the age of acquisition (AoA) of LSE (natives and late learners) in order to find out if the age at which the sign language is acquired affects how it interacts with the spoken language. Since the study specifically looked into the parallel activation of signs during the auditory task, half of the word pairs had phonologically related signed translations in LSE, which meant that both signed translations in those word pairs shared at least two formational parameters, making them quite similar. As words and signs do not share phonological representations (since they are performed in different modalities), the study investigates, apart from cross-language activation, whether the activation traverses modality.

The results show that the bimodal bilingual adults are faster at judging semantically related words when the equivalent signed translations are phonologically similar than when the LSE translations are phonologically dissimilar. Semantically unrelated word pairs are judged slower when the LSE translations are phonologically related than phonologically unrelated. A group of hearing monolingual controls with no knowledge of LSE showed different results as their reaction times were the same whether or not the word pairs had phonologically related signed translations in LSE. For the controls there is no activation of the hidden signed language, as they do not know it.

References

The visual communicative environment created by three mother-child dyads and the mother’s use of VCS

Wille, Mouvet & Van Herreweghe

This longitudinal study engages with research on (i) interactions between Deaf/hearing mothers and their deaf/hard-of-hearing child, (ii) the associated obstacles for hearing mothers, and (iii) the complexity of how to address the deaf/hard-of-hearing child. It reports on mothers’ use of VCSs and compares the visual communicative environment created by three mother-child dyads, namely a Deaf mother interacting with her moderately deaf infant and two hearing mothers interacting with their deaf infants. Whereas the Deaf mother (M1) had personal experience with Flemish Sign Language, its use and communication strategies, one of the hearing mothers (M2) had a basic knowledge of Flemish Sign Language and VCSs, while the other (M3) had no experience with visual communication at all. The observations of free play interactions were collected at different points in time (6-9-12-18-24 months of age) and annotated focusing on implicit and explicit strategies (van den Bogaerde, 2000).

The analysis shows that M1 uses both implicit and explicit VCSs more frequently than the hearing mothers. She also uses a greater variety of strategies, and adjusts them over time according to positive experiences. M1 touches and taps her child over four times more than M2, while M3 rarely uses tactile strategies. As a hearing mother, M2 incorporates a great variety of strategies and introduces some lexical signs within the child’s visual field, while M3 doesn’t incorporate lexical signs. Furthermore, M3 produces 53.3% more strategies depending on voice and sound than M1 and 17.9% more than M2. It is noteworthy that C3 lags behind in the acquisition of both visual and oral communication compared to C1 and C2.

M1’s incorporation and variation of VCSs can serve as an example for hearing mothers. M2 learns to create a linguistically stimulating environment for her deaf child and to incorporate VCSs, while M3 focuses mainly on oral-aural oriented strategies. Cochlear implantation influences the hearing mother’s choice of strategy, which in turn affects the child’s language acquisition.
Investigation of Bimodal Bilingual Lexical Networks of English and ASL: Evidence from Cross-Modal Rhyme Priming

Willems & Newman

A growing interest in the organization of the bimodal bilingual lexicon has urged researchers to explore questions about parallel language activation (Morford et al. 2011, Shook & Marian 2012, Van Hell et al. 2009). This study investigated the structure of the bilingual lexicon by tracking activation across L1 English and L2 ASL lexical neighbors. In the cross-modal priming task, 19 nonnative sign language learners heard an English word (e.g. keys) and responded to the lexicality of a signed target: an underlyingly rhyme (e.g. CHEESE), a sign neighbor of that word (i.e., phonologically related in ASL; e.g., PAPER), or an unrelated pseudosign. This design provides insights into how activation spreads from a spoken lexical item (e.g., keys, /kiz/) to its spoken neighbor (e.g., cheese, /ʃiz/), then to its sign equivalent (e.g., CHEESE) and further to its phonologically related (L2) sign neighbor (e.g., PAPER) by comparing RT priming effects across conditions. The results indicated that activation spread quickly to rhyme sign equivalents (e.g., CHEESE) relative to pseudosigns. For beginning learners, the activation continued to spread to the L2 neighbors (e.g., PAPER), but not for highly proficient learners. An item analysis indicated that semantic relatedness did not facilitate L2 sign neighbor activation. For example, the sign neighbor (e.g., DAD) within a semantically related pair (e.g., MOM-DAD) was not activated faster than an L2 neighbor (e.g., WEEK) in a non-semantically related pair (e.g., NICE-WEEK), despite phonologically relatedness. Simply, activation may not spread past the first order ASL translation neighbor regardless of semantic or phonological links, especially for advanced learners. Additionally, the results showed that learners focus on handshape and movement parameters, which influences spread of activation across lexical neighbors. A model is proposed such that cross-modal lateral connections are weakened over time and handshape parameter feeds most of the activation to neighboring signs as a function of system dynamics.

References


Acquisition of Prosodic Cues at Intonational Phrase Boundary in Hong Kong Sign Language: a Preliminary Analysis

Xu

In the literature of sign language prosody, it is widely accepted that prosodic constituents is marked by a shared set of prosodic cues, including lengthening, blinks, change in brow position and change in head position. Previous studies in Hong Kong Sign Language (HKSL) found that blink marks intonational phrase (I-phrase) boundaries consistently but not exclusively; and lengthening, which is based on the duration of movement, holds and repetition, proves to be the strongest concomitant cue at I-phrase boundaries (Tang et al. 2010).

Research question
Starting from these studies, this study mainly focuses on the acquisition of prosodic cues at I-phrase boundaries by early and late learners of HKSL. We want to know which type of cues is acquired earlier and whether this type of cues can be acquired by both groups of children.

Empirical method
Narrative data of two early learners and two late learners are compared with that of two native adults. The four children are exposed to HKSL at 1;3, 1;9, 6;8 and 7;2, respectively. We use morphosyntactic constituents (clauses, parentheticals and topics) to locate possible I-phrase boundaries and each boundary candidate is further analyzed by number and type of prosodic cues that occur.

Result
Quantitative measures suggest that early learners have fully acquired lengthening in HKSL. They already use blinks, change in head position and change in brow position to mark I-phrase boundaries, though adult-like pattern has not been developed at this stage. Late learners also acquire lengthening to some degree, but repetition rate is higher than adult’s data. Forth rest three prosodic cues, late learners donor acquired adult-like pattern, either.

Conclusion
The results point to the hypothesis that prosodic cue on hands is acquired earlier than other prosodic cues related to nonmanual properties. This development-pattern reflects Reilly & Anderson’s (2002) argument for ‘hands before face’ approach to acquisition of nonmanuals for grammatical markers.

References